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PERIPHERAL VASCULAR DISEASE IN INDUSTRY.*

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During the past decade a tremendous awakening of interest in the subject of peripheral vascular disease has occurred. A number of physicians are now devoting the major part of their time to the diagnosis and treatment of diseases of the peripheral vessels.

In 1862, Maurice Raynaud published an excellent account of the disease which was named for him; erythromelalgia was reported by Mitchell in 1872; Leo Buerger, in 1908, described thrombo-angiitis obliterans, and arteriosclerotic disease of the peripheral arteries was recognized before these dates. Little, however, in the way of treatment was offered; hence, the lack of general interest in this field.

In the course of this discussion, it is my purpose to try to arouse your interest in the subject of peripheral vascular diseases and to consider these diseases in a practical manner. I hope that this discussion will be of some value when applied to the field of industrial medicine. What role, for example, do climate, occupation, and working conditions play in the cause and prognosis of peripheral vascular diseases? If a subject with uncomplicated Raynaud's disease living in a cold climate could move to a warm climate where it was perpetually summer, the disease would tend to disappear or become so mild that it would not be of clinical importance. If a subject with pneumatic hammer disease could become an office clerk, the disease would also tend to disappear. If a mail carrier with thrombo-angiitis obliterans of the lower extremities, who has to walk several miles a day in all types of weather, could sit at the window in the post office and sell stamps, the outlook from the standpoint of amputation would be greatly improved. Occupation and the type of work which an individual carries out are bound to be important factors in determining the outlook in cases of occlusive arterial disease, particularly if the disease involves the lower extremities. It is extremely important for patients with circulatory insufficiency in the extremities to have the type of work which will permit them to make a living and, at the same time, permit them to live within the limits of the blood supply of the extremities; otherwise, serious complications are certain to result. This is particularly true in cases of thrombo-angiitis obliterans.

The chief problem concerning peripheral vascular disease should not be the diagnosis and treatment but rather the prevention of complications which incapacitate the patient and frequently result in amputation of the involved extremity. Most of the amputations, for example, which are performed in cases of thrombo-angiitis obliterans could undoubtedly be avoided by early diagnosis and particularly by the education of the patient regarding the nature of his disease. The general practitioner and industrial physicians will prove to be the patient's first line of defense.

Fortunately, diseases affecting the blood vessels of the extremities are easy to recognize and study. They are exposed to the eye and to the fingers, and are susceptible to accurate determination by functional studies. Therefore, progress in the treatment of these diseases has been remarkable and rapid. Knowledge of a working classification of peripheral vascular diseases and their differential diagnosis is necessary before one can institute intelligent treatment.

Diseases of the peripheral arteries of the extremities fall into two large groups, namely, "functional" and "organic".

Of the vasomotor, or functional, group of diseases there are two main types: (1) the vasoconstricting

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Lecture was illustrated with numerous case reports which have been omitted from this article.

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type, which is accompanied either by the multiple-phase color reaction (Raynaud's disease) or by the one-phase color reaction (acrocyanosis), dead fingers and local syncope; and (2) the vasodilating type, of which erythromelalgia is a well-known example. This includes "erythromelalgia of the head, histamine cephalgia".

In the organic group, there are eight main divisions: (1) thrombo-angiitis obliterans (Buerger's disease); (2) arteriosclerosis obliterans; (3) arteriovenous fistula (congenital and acquired); (4) simple thrombosis and embolism; (5) aneurysm with or without thrombosis; (6) cervical ribs and scalenus anticus syndrome; (7) pneumatic hammer disease, and (8) arteritis of the temporal vessels.

From our experience at the Mayo Clinic, one can say that of functional disturbances, 38 per cent represent Raynaud's disease, 49 per cent represent other forms of primary and secondary vasospastic disorders, while only 13 per cent represent vasodilating disorders, of which 4 per cent may be classified as erythromelalgia. In the organic group of diseases, 46 per cent represent arteriosclerosis obliterans. Forty-seven per cent represent thrombo-angiitis obliterans and 7 per cent represent the other types of occlusive arterial diseases. This illustrates the relative importance of these diseases. In our present state of knowledge, we are unable to classify accurately about 4 per cent of peripheral vascular disease (Brown).

Sufficient information to allow a diagnosis to be made usually will be obtained by the following: eliciting a history of signs and symptoms of circulatory disturbances in the extremities; examination of the hands and feet with reference to changes in temperature, trophic changes, and the presence or absence of rubor when the extremity is dependent, or of blanching when the extremity is elevated; palpation of the brachial, radial and ulnar arteries, and palpation of the femoral, popliteal, dorsalis pedis and posterior tibial arteries. The difficulty in diagnosing localized vascular disease of the extremities is in distinguishing the vasomotor or functional type from the organic type, and particularly in recognizing these lesions when they are associated.

SKIN TEMPERATURES OF THE EXTREMITIES IN PERIPHERAL VASCULAR DISEASES

In order to appreciate the role which vasospasm plays in the production of the signs and symptoms encountered in cases of peripheral vascular diseases, one should have clearly in mind the role which vasoconstriction plays in the normal individual. Furthermore, it is important to differentiate vasospasm and normal vasoconstriction. A great deal of confusion has arisen in the minds of the medical profession regarding the use of sympathectomy in the treatment of peripheral vascular disease because many surgeons and clinicians have felt that, following sympathectomy, one only gets rid of normal vasoconstriction, and in many instances elimination of vasoconstriction has not been complete. I use the term "vasospasm" to indicate spasm in the vessels, which is superimposed on the normal degree of vasoconstriction that is present in all blood vessels. The degree of vasoconstriction varies in different parts of the body and there is a definite vasomotor gradient from the face to the hands and feet. The minimal degree of vasoconstriction is in the face, with an increase in the hands and feet.

The difference between normal vasoconstriction and vasospasm can readily be demonstrated if one takes, for example, a normal individual, a subject with thrombo-angiitis obliterans, and one with Raynaud's disease. If these three subjects are placed under controlled environmental conditions in a temperature of 68°F. (20°C.) and a humidity of 40 per cent, and if the surface temperatures of the various digits of both upper and lower extremities are recorded by means of thermocouples, and if the environmental temperature is gradually increased to 90°F. (32.3°C.), a striking difference in the manner in which vasodilatation occurs in the hands and feet of these subjects will be evident.

In the environment of 68°F. (20°C.), the temperature of the toes of all three subjects will approximate that of the room temperature, and the temperature of the fingers may also approximate the room temperature.

When the environmental temperature is gradually elevated, keeping the humidity constant, by the time the temperature reaches 79°F. (26.0°C.) complete vasodilatation will occur in the hands, and frequently in the feet of the normal individual, whereas, it will be necessary to continue to elevate the environmental temperature to approximately 83° to 84°F. (28.5° to 29.0°C.) before vasodilatation will occur in the feet of the subject with thrombo-angiitis obliterans, and the room temperature will have to be further elevated to approximately 85° to 86° F. before com-

plete vasodilatation will occur in the digits of the subject with Raynaud's disease.

In all three subjects, vasodilatation occurs, first in the hands and then in the feet. In cases of Raynaud's disease I have frequently noted that the temperature of the fingers was below that of the toes, and yet vasodilatation invariably occurs more rapidly and at a lower environmental temperature level than in the toes. It is obvious from this simple observation that the degree of vasoconstriction is greater in the subjects with Raynaud's disease and thrombo-angiitis obliterans, respectively, than it is in the normal subject. This difference between the environmental temperatures at which complete vasodilatation occurs in the normal subject, in the subject with thrombo-angiitis obliterans and in the subject with Raynaud's disease is an index of the degree of the superimposed vasospasm which is present in cases of these two peripheral vascular diseases. Following sympathectomy, normal vasoconstriction and vasospasm are eliminated from the denervated extremities. However, there are many skeptics who feel that sympathectomy is of no importance in the treatment of vasospasm in peripheral vascular disease. Our clinical experience over many years at the clinic emphatically contradicts this line of thought.

RAYNAUD'S DISEASE

This disease affects young women in more than 95 per cent of instances. Because it is caused by vasospasm it is completely relieved, if uncomplicated, by sympathetic ganglionectomy. This treatment is used in severe cases. The first symptoms of the condition generally appear in winter. They consist of changes in color, usually of all of the fingers or toes. The involvement is symmetrical. The changes in color are of the so-called three-phase type. The patients frequently note that the digits become white and "dead" with exposure to cold, and when warmed they become red, or often blue. These changes in color frequently are excited by emotional disturbances. The peripheral arteries of the involved extremities always pulsate normally. Hence, the pain of intermittent claudication never occurs in Raynaud's disease. Gangrene, when present in advanced cases, is limited to the cutaneous surface, in contradistinction to the mass gangrene which sometimes occurs in thrombo-angiitis obliterans.

In mild cases of Raynaud's disease the patients usually do not require treatment. The patients should refrain from exposure to cold, and are better if they spend the winter in a warm climate. Sympathectomy is the present treatment of choice in cases in which the disease is advanced.

ERYTHROMELALGIA

Erythromelalgia occurs approximately once in every 200 cases of peripheral vascular disease. It is the rarest of peripheral vascular diseases and will be considered only briefly. It manifests itself chiefly by burning pain in the feet. Elevation of the feet tends to produce relief. Arterial pulsations are normal or exaggerated and the surface temperature of the involved extremity is always above normal. Primary erythromelalgia must not be confused with pseudo-erythromelalgia. The latter condition is always associated with some degree, and frequently with an advanced degree, of arteriosclerosis. Patients complain of subjective burning pain in the feet but there is no actual rise in surface temperature. No specific treatment is available for this condition.

THROMBO-ANGIITIS OBLITERANS

Thrombo-angiitis obliterans is a chronic disease of the arteries and veins which is largely confined to the extremities and occurs predominantly among men between the ages of twenty-five and fifty years. Approximately 98 per cent of the subjects affected are males. The reason of this is not clear. The disease is characterized by a chronic relapsing lesion of the vessels, and occlusion and collateral circulation struggle for supremacy. The element of time is most important in this struggle, since on this rests preservation of the part. If the intervals between relapses are short and if the time for adequate collateral circulation is brief, trophic changes and gangrene are likely to ensue. Conversely, if the intervals of time between relapses are long, collateral circulation becomes adequate and sufficient supply of blood to the distal parts is assured. The first consideration regarding prognosis is the frequency of exacerbation of the disease. Experience in a large number of cases of thrombo-angiitis obliterans shows clearly that a high percentage of bad prognoses (regarding amputation) is not justified. Up to January 1, 1940, 1,091 cases of thrombo-angiitis obliterans had been observed at the Mayo Clinic. These patients had a total of 230 amputations (either a digit, a foot, or leg). This does not include amputations which were performed prior to admissions, nor does it include those performed after patients were dismissed from the clinic.

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This disease has been observed among people of practically every nationality.

The cause of thrombo-angiitis obliterans is as yet unknown. The excessive use of tobacco seems to aggravate the disease, but has not been identified as the causative agent. Buerger reproduced the lesion in human beings by implants of segments of diseased veins. Dorsey and I reproduced the lesions in animals by injection of organisms isolated from acutely inflamed veins of man and also by implantation, adjacent to the vessels, of segments of acutely inflamed veins of man.

The pain of intermittent claudication is the predominating symptom in cases of thrombo-angiitis obliterans. Palpation of the brachial, radial and ulnar arteries and of the femoral, popliteal, dorsalis pedis and posterior tibial arteries invariably will reveal that one or more of these arteries is occluded. If circulatory insufficiency is present in an extremity, regardless of the nature of the occlusive process, rubor occurs with dependency and there is excessive pallor with elevation.

Superficial phlebitis of the migratory type is present in about 30 per cent of cases of thrombo-angiitis obliterans. It rarely, if ever, occurs in cases of arteriosclerosis. Changes in color, of the one-phase or three-phase type, are present in the involved extremities in 30 per cent of cases of thrombo-angiitis obliterans. It is for this reason that one is likely to confuse Raynaud's disease with thrombo-angiitis obliterans. Changes in color, of the three-phase type, are always present in Raynaud's disease, and without these changes in color one could not make a diagnosis of Raynaud's disease; on the other hand, vasospastic disturbances of the three-phase type, secondary to the occlusive vascular process, occur in 30 per cent of cases of thrombo-angiitis obliterans. In cases of thrombo-angiitis obliterans pulsations invariably are absent in one or more of the usual palpable arteries of the extremities, whereas in Raynaud's disease pulsations in the peripheral arteries are normal.

ARTERIOSCLEROSIS OBLITERANS

In more than 90 per cent of cases arteriosclerosis with occlusion affects men who are more than fifty-five years of age, and since vasospasm is rarely, if ever, an element in the condition, it is not affected by sympathetic ganglionectomy. Arteriosclerosis, with or without arterial occlusion, usually affects men who are more than fifty-five years of age, in contradistinction to thrombo-angiitis obliterans which usually affects young men. Pulsations of the peripheral arteries in arteriosclerotic disease of the extremities are usually diminished, and frequently pulsations are absent in the popliteal, dorsalis pedis and posterior tibial arteries. Occasionally the femoral artery is occluded, but it is rare to find a radial, ulnar or brachial artery occluded. The fundamental pathologic process in the arteries is the same, irrespective of the presence or absence of diabetes mellitus.

Intermittent claudication is the most significant symptom in the diagnosis of occlusive arterial disease of the extremities. It is a symptom and not a disease. It manifests itself following exercise as a cramp-like pain or as a feeling of distress in the upper or lower extremities. It frequently is noted in thrombo-angiitis obliterans, and may affect the upper extremities. It is observed less frequently in arteriosclerotic disease. In the lower extremities, the distress is usually confined to a single digit, to the arch of the foot, or to the calf of the leg. In the upper extremities, a digit, the entire hand or the forearm may be the site of the distress. It is the result of an insufficient supply of arterial blood to the distal parts. It invariably comes on after exercise and is relieved by rest. Many patients can state the number of steps necessary for the production of pain and the period of rest required for relief. More than 50 per cent of patients who have occlusive vascular disease of the extremities give a history of intermittent claudication. Since intermittent claudication never occurs in subjects with Raynaud's disease or erythromelalgia, the symptom practically means either arteriosclerosis with occlusion or thrombo-angiitis obliterans. In the presence of intermittent claudication, the brachial, radial and ulnar arteries and the femoral, popliteal, dorsalis pedis and posterior tibial arteries should be examined to determine whether pulsations are present or absent.

The roentgenographic demonstration of calcification in the arteries of the extremities does not necessarily mean that the patient has primary arteriosclerotic disease, for in many cases in which thrombo-angiitis obliterans has developed earlier in life there may be evidence of calcification of the peripheral arteries in the fifth or sixth decade.

The treatment of arteriosclerotic disease, with occlusion and thrombo-angiitis obliterans, consists first in prophylactic measures. These include avoidance

of trauma and of exposure to excessive cold, the wearing of proper shoes, and particularly the proper surgical handling of all ingrown toe nails. Increasing knowledge, by members of the medical profession, of the danger of operating on affected digits to which the supply of blood is already diminished perhaps will accomplish greater changes in prognosis than any other single factor. A red, cold foot, which is invariably seen in cases of circulatory insufficiency, attributable either to arteriosclerosis or thrombo-angiitis obliterans, must be distinguished from a red warm foot that is secondary to some local infection around the nails or digits. The measures of second importance are applied to increase the circulation in the extremities. Postural exercises, constrast baths, radiant heat, tissue extract and typhoid vaccine given intravenously, constitute the important medical measures. Roth and Barker have shown that intramuscular injection of pancreatic tissue extract (insulin free) given in doses of 3 c.c. enables many subjects with intermittent claudication to walk two to three times as far as before, without development of the usual distress. The exact way in which the tissue extract acts is not clear. From the surgical standpoint, in selected cases of thrombo-angiitis obliterans, sympathetic ganglionectomy usually gives satisfactory results. The effectiveness of this procedure, however, rests on the proper selection of cases.

ARTERIOVENOUS FISTULA

An arteriovenous fistula represents a short circuit in the blood flow from an artery to a vein. Arterial blood flows from the artery, through the fistula, to the vein without flowing through the capillary bed. The fistula may be acquired or congenital. No difficulty should be experienced in the diagnosis of acquired arteriovenous fistula. There is always a history of injury, generally a puncture or a bullet wound. There is an increase in the surface temperature of the involved extremity and a bruit and thrill can invariably be elicited. The important points to remember in the diagnosis of congenital arteriovenous fistula are the increase in size and length of the involved extremity, the increase in surface temperature, and the occasional occurrence of bruits and thrills. The diagnosis can be established by removing blood under oil from one of the regional veins and studying the oxygen content. In arteriovenous fistula, either acquired or congenital, there is a high admixture of arterial blood, either in the regional or deep veins. If one compares a sample of blood removed from one of these veins with blood removed in a similar manner from the opposite extremity, the difference in color of the specimens usually is sufficient to establish the diagnosis. Bright red blood invariably is found in the regional veins of the involved extremity, whereas dark red blood is found in the veins of the normal extremity. Arteriography now offers additional means of visualizing arteriovenous fistulas. The treatment of acquired arteriovenous fistula is always surgical. Surgical treatment also can be frequently carried out successfully in cases of congenital arteriovenous fistula. This should not be attempted until an arteriographic study has been made.

THROMBOSIS AND EMBOLISM

Simple thrombosis and arterial emboli in extremities are observed frequently and are not always easy to diagnose correctly. Simple thrombosis occurs more frequently among patients who have arteriosclerotic disease than among those of any other group. Frequently, it is difficult to distinguish simple thrombosis, for example, in the popliteal artery from an embolus. Patients usually complain of sudden pain in the popliteal space, with coldness and numbness of the leg, and it is often difficult to determine whether this is due to an embolus or to simple thrombosis of the artery. In elderly people, in the absence of auricular fibrillation or endocarditis, it is relatively safe to assume that simple thrombosis of the artery has taken place. Embolectomy in the arteriosclerotic group of cases is not a very satisfactory procedure. The extremity should be kept warm, but care taken that the skin is not burned with the use of hot water bottles. Morphine may be necessary for relief of pain. If possible, place the patient in an environmental temperature of 85°F., on a Sanders' bed until improvement in collateral circulation occurs. Amputation frequently is necessary. If embolectomy is carried out, heparin should be given intravenously for several days following the operation, so as to prevent the recurrence of the formation of a thrombus in the artery.

ANEURYSMS WITH OR WITHOUT THROMBOSIS

Aneurysms with or without thromboses are usually easy to diagnose and invariably require surgical treatment. Lesions of this character occur more frequently in the lower than in the upper extremities. Syphilis and arteriosclerosis seem to be the chief causative factors. In our experience at the clinic,

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at least 70 per cent of the aneurysms involving the aorta are associated with syphilis, whereas, syphilis plays little or no role in the production of intracranial aneurysms. Congenital defects in the musculature of the arterial wall seem to account for practically all of the intracranial aneurysms which we have observed but are seldom factors in the production of aneurysms occurring in the arteries of the extremities.

CERVICAL RIB AND SCALENUS ANTICUS SYNDROME

Vascular disorders of the upper extremities may be caused by cervical ribs producing mechanical compression of the vessels in the supraclavicular fossa or such disorders may be associated with the scalenus anticus syndrome. The signs and symptoms are essentially the same in both conditions. Movements of the head, neck and shoulder girdle produce undue pressure on the brachial plexus and subclavian vessels. The symptoms of compression of the brachial plexus and subclavian artery are usually pain, atrophy, numbness, or circulatory changes. Pain may be sharp and lancinating, or only of a dull character. The pain usually follows the course of the nerves. Circulatory symptoms are rarely severe but they may manifest themselves in a dusky hue of the arm and hand as compared with the color of the opposite upper extremity. Gangrene may occur, involving one or more fingers. This usually is accompanied by obliteration of either the ulnar or radial artery, or both. Diminution in volume of the pulse on the affected side with noticeable decrease in surface temperature, associated with numbness and coldness, is almost invariably present. The surgical indications for relief of symptoms of cervical ribs and those of the scalenus anticus syndrome are the same. The operation which has proved of the greatest value is one described by Adson, which consists in either removal of the cervical rib or resection of scalenus anticus muscle.

PNEUMATIC HAMMER DISEASE

This is a vasospastic disturbance of the hands, usually affecting stone cutters. Cottingham gave the first description of this syndrome in this country, in 1917. Most stone cutters who use a pneumatic hammer have a disturbance of the circulation of the hands. It consist of blanching and numbness of certain fingers when they are exposed to low temperatures. The disturbance may simulate that of Raynaud's disease but the history, sex, lack of involvement of the feet, and the practical absence of trophic changes, serve to distinguish it from Raynaud's disease. The fourth and fifth fingers are the ones in which the vasospastic disturbance usually manifests itself first because they are the fingers which are nearest to the cutting end of the chisel and are usually pressed closely against it in order to guide it. Aside from the vasospastic disturbances, cutaneous calluses and changes in the muscles and joints have been reported among workers who use air-driven tools. Massive gangrene does not occur in pneumatic hammer disease. Trophic changes are relatively rare. The disease tends to run a benign course.

TEMPORAL ARTERITIS

This is a non-fatal disease which is characterized by periarteritis, arteritis of the temporal vessels, and painful tender regions over the scalp. It is accompanied by headache, general malaise and lassitude, weakness, fever, night sweats, anorexia, loss of weight, anemia, and mild leukocytosis. It generally affects elderly persons. The immediate prognosis is good.

MECHANICAL DEVICES IN THE TREATMENT OF PERIPHERAL VASCULAR DISEASE

In the mechanical age in which we now live, it seems natural that mechanically minded physicians should, sooner or later, resort to the employment of mechanical devices in the treatment of peripheral vascular disease. The pavex machine (intermittent suction and pressure apparatus), the intermittent venous occlusion apparatus sponsored by Collens-Wilensky and the Sanders' bed are illustrative examples. They are popular mechanical devices which are now in use for the treatment of peripheral vascular disorders. Our experience with the pavex machine has been very disappointing. I do not feel that the circulation in the extremities is ever improved by the use of this apparatus. The same statement holds true for the intermittent occlusive apparatus. The claims which have been made for these mechanical devices have been greatly exaggerated, in my opinion, and the improvement which has been attributed to their use actually has been due to other factors which have not been appreciated fully by clinicians. The Sanders' bed is an oscillating bed which permits the patient to take passive, postural exercises for an indefinite period of time without any effort on the part of the patient. However, in order to obtain any satisfactory results with the use of the bed, the patient

should be kept in an environmental temperature of approximately 85° to 87°F. The reason for this statement is obvious when one recalls the fact that vasospasm disappears from the peripheral vessels when an individual is exposed to this temperature. With the tilting of the bed, the patient derives the same benefit as he would if he were taking continuous postural exercises. This mechanical device can be used in the home as well as in a hospital; it is simple in its construction and can be used for older people in cases in which the use of the pavex machine and intermittent occlusive apparatus would be contraindicated.

DISEASES OF THE VEINS

From a practical standpoint, diseases of the veins fall into three large groups: (1) thrombophlebitis; (2) varicose veins, and (3) congenital venous anomalies, which frequently are associated with arteriovenous fistula. Thrombophlebitis may be a superficial migrating type which one often sees associated with thrombo-angiitis obliterans or it may be of the deep type which often follows surgical operations. No specific treatment has been brought forth for thrombophlebitis. Thrombophlebitis is one of the most frequent and troublesome complications encountered following abdominal operations. It invariably involves the lower extremities and is usually confined to one leg although occasionally both may be involved. It manifests itself clinically with pain, swelling and fever. The initial treatment should consist of elevation of the extremity to combat the edema and the application of warm, moist packs for two or three days or until the pain subsides. Usually, this simple treatment is all that is needed for the disease runs a self-limited course and within a week or ten days the swelling completely subsides and nature seems to develop an adequate venous collateral return from the involved extremity but adequate only with the patient in a horizontal position. The second stage of the treatment is directed toward combating edema when the patient is out of bed and attempting to walk. This is best accomplished with the use of a Para rubber bandage. A white cotton stocking should be worn on the involved extremity and then the extremity should be wrapped in a Para rubber bandage which should be started at the instep and wrapped in a spiral manner to the knee. This bandage should be changed every two or three hours until the patient is accustomed to wearing it, and then the bandage should be removed and reapplied two or three times a day. If the bandage is properly applied and intelligently worn for a period of four to six weeks, an adequate venous collateral circulation will develop and then the bandage can be discarded. It is a crime to have any patient go through life with residual edema which has been inadequately treated, as a result of thrombophlebitis following operation. Ace bandages and cloth bandages I believe are inadequate to prevent edema.

From an anatomic standpoint, venous return from the lower extremity is accomplished through the greater and lesser saphenous systems and deep system of veins. The superficial and deep veins are connected by communicating veins. These venous systems are equipped with valves. From a clinical standpoint, one is interested only in whether these three systems of veins are competent or incompetent; if they are incompetent, what is to be done? Of the various systems, the greater saphenous is the most important from a clinical standpoint, as it is the most frequently involved. If the greater saphenous system is incompetent, treatment should consist first in ligation of the vein at the fossa ovalis, as near the femoral vein as possible. An appropriate sclerosing solution (usually a 5 per cent solution of sodium morrhuate) is then injected into the distal segment. This is the best method for preventing recurrence of varicose veins. Appropriate treatment becomes relatively simple if one only keeps in mind the physiologic nature of the problem in question.

Venous anomalies are much more frequently encountered than the medical profession realizes. These anomalies can be treated in very much the same manner as ordinary varicose veins. The same sclerosing solutions can be employed but one must keep in mind the fact that these anomalies are frequently secondary to congenital arteriovenous fistulas and the varices will invariably recur unless the fistulas are successfully treated at the same time.

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MATERNAL DEATHS IN VIRGINIA.*

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Dr. Howard W. Haggard, in one of his delightful books, makes the statement that the care a people gives to its women is a measure of its civilization. If that be true, Virginia is neither the most nor the least civilized State in the Union, North Dakota ranking first and South Carolina last. The rank of the various states in reference to maternal mortality is shown in the table taken from the chairman's address to the section on Obstetrics and Gynecology of the American Medical Association last June. You

FIGURE 1.
MATERNAL DEATHS PER 10,000 LIVE BIRTHS

	1938	1936		1938	1936
North Dakota	24	43	Idaho	41	44
Connecticut	26	41	Kansas	41	57
Minnesota	28	42	Kentucky	42	56
Rhode Island	28	40	Oklahoma	42	62
Wisconsin	29	42	Colorado	45	71
			Maine	46	51
Utah	30	44	Arizona	48	91
Nevada	32	56			
Wyoming	32	50			
California	33	47			
Iowa	33	46	North Carolina	53	66
Montana	33	55	Virginia	53	58
Washington	33	52	Arkansas	55	76
Illinois	34	45	Delaware	56	71
Nebraska	35	50	District of Columbia	56	69
Oregon	35	54			
South Dakota	36	46	Tennessee	56	70
Indiana	37	48	Texas	56	69
Michigan	37	52	New Mexico	57	74
New Jersey	37	40	Louisiana	59	87
Vermont	37	50	Mississippi	59	69
Maryland	38	47			
New Hampshire	38	48			
New York	38	49	Georgia	67	82
Ohio	38	50	Alabama	68	74
Massachusetts	39	49			
Missouri	39	61			
Pennsylvania	39	52	Florida	75	81
West Virginia	39	53	South Carolina	79	90

will notice that there has been considerable improvement over the whole country. The politicians will probably claim that the Sheppard Towner bill was responsible, but the folk in Connecticut, which has next to the lowest maternal mortality and a 36 per cent improvement in the two-year period, 1936 to 1938, are proud of the fact that they did not accept any of the Sheppard Towner money. The maternal mortality in the State of Virginia for the past ten years is shown in Figure 2. There was a reduction of 9 per cent in the period 1936-1938 covered in the preceding table. The Maternal Welfare Committee of the Medical Society of Virginia believes that their campaign of education, especially the refresher courses conducted by Dr. M. E. Lapham, was a factor.

Be that as it may, the Maternal Health Committee, which is the new name for the Maternal Welfare Committee, is not satisfied with conditions that pertain to maternal health. The committee is approaching the problem from two angles. It is endeavoring to have established maternal centers all over the State, and, secondly, it is attempting to review every case of maternal death. Figure 3 shows the distribution of the clinics in 1936 and in 1940. There were nine prenatal clinics in 1936 and eighty-nine at present. The clinics are established upon request of the local medical society. The State Board of Health furnishes the nurses and the equipment and the local medical society the medical attention. The Maternal Health Committee would like very much to see clinics in those counties not represented on this map.

However, it is the second aspect of the work of the Committee on Maternal Health to which I wish to direct your attention this afternoon. With the cooperation of the State Board of Health the pertinent facts of every maternal death are obtained and are studied by each member of the committee. The study is entirely impersonal and no one except the field worker knows who the doctor or midwife is or even what hospital is involved. As an illustration, one work sheet, No. 14-C, was taken at random from the files. The information from the death certificate shows this to be an urban death which took place in a hospital. The patient was colored, aged twenty-five, and she lived in the country. The cause of death was eclampsia (intrapartum) with terminal pulmonary edema. She was attended by a doctor and there was no autopsy. Information from the birth certificate shows the date of birth, that the

*Read as a part of the Symposium on Obstetrics and Gynecology at the University of Virginia, November 8, 1940.

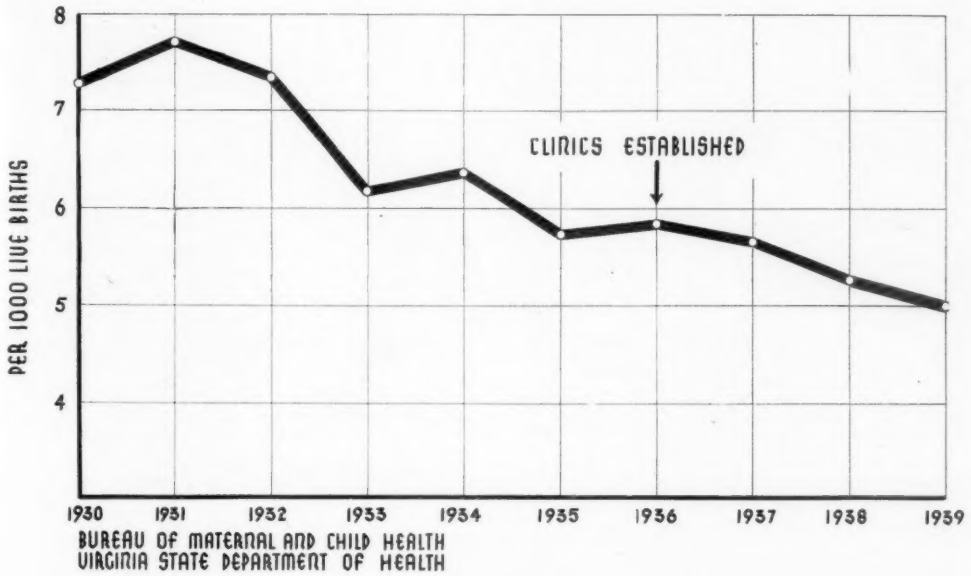

Fig. 2.—Maternal mortality in the State of Virginia for the past ten years.

baby was full term and born alive in a hospital and was the first born child of this mother. Additional information shows that this woman died eighteen hours after delivery. She first consulted a physician in the seventh month of pregnancy. The only other physicians she saw were those on the hospital staff. A Wassermann test was negative in her seventh month of pregnancy and there were no complications during pregnancy. She was given 5/8 gr. of morphine and 1½ grs. of seconal before admission to the hospital, and 3 grs. of nembutal after admission. Delivery was uncomplicated except for convulsions. There was a perineal laceration which was repaired. Fifteen hours after delivery patient had a circulatory collapse and pulmonary edema. This case was put down as having inadequate prenatal care. The story of the case as told by the field worker is as follows:

"Private Physician: This patient was first seen by the private physician during the seventh month of pregnancy for routine prenatal care. On that visit, the pregnancy was progressing normally and her general condition seemed good. Blood pressure was 120/80 and Wassermann was negative. She returned at intervals of two weeks for prenatal care. One month after the first visit, her blood pressure was elevated to 140/90 and there was a slight trace of albumin in the urine. Bed rest, a low salt and pork-free diet was advised. She was instructed to return at weekly intervals for close observation.

"She was next seen at home, three weeks later, in early labor with a blood pressure of 200/130 and a history of severe headache and edema of the lower extremities for about a week. She had not returned for prenatal care during the last three weeks, as advised. Morphine grs. 1/4 and seconal grs. 1½ were given soon after physician's arrival. About twelve hours later she had a generalized convulsion, which was followed after forty minutes by another convulsion. She was then given morphine grs. 1/4, and 20 cc. of 10 per cent magnesium sulphate solution intravenously, and referred to the hospital.

"Midwife: The midwife was first called to see the patient at onset of labor. Upon her arrival, she found the patient in labor and with marked edema of lower extremities. The physician was called immediately.

"Family: Information from physician and midwife confirmed by family. No additional information.

"Hospital: The patient was admitted to the hospital about eighteen hours after she was first seen by the private physician, six hours after the first convulsion. She was found to have a term pregnancy, not definitely in labor, drowsy, but easily aroused. Blood pressure 180/120, pulse 90. Treatment on admission consisted of 500 cc. of 10 per cent glucose

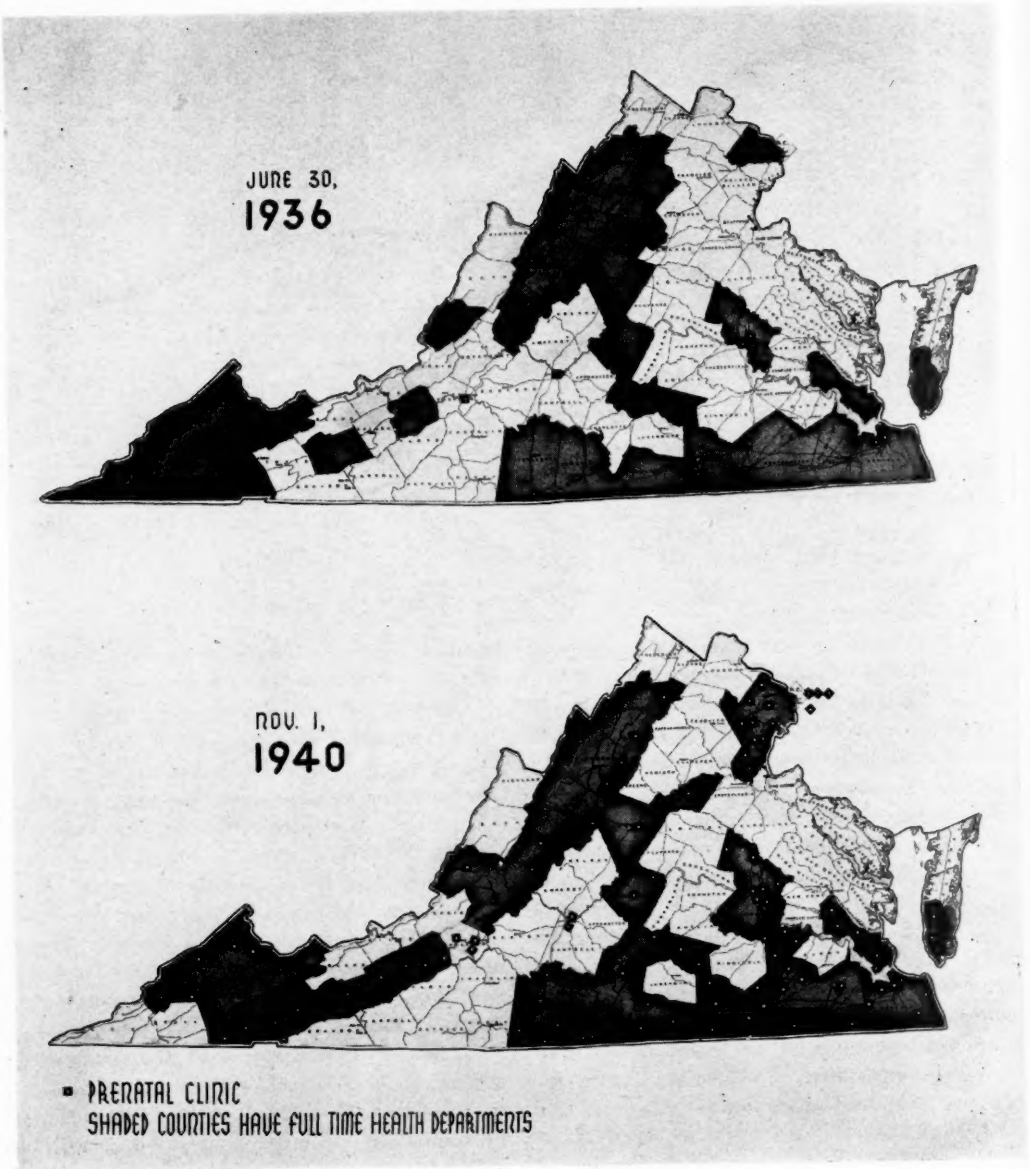

Fig. 3.—Distribution of clinics.

solution in distilled water, to which had been added 80 cc. of molar sodium lactate solution, and 4 cc. (grs. 3) of digifolin intravenously and nembutal grs. 3, digitalis grs. 3 by mouth. Sweetened fruit juices were given at frequent intervals as soon as patient was able to take them.

"Seven hours after admission, definite uterine contractions were occurring every five to eight minutes. A sterile pelvic examination revealed the pelvic measurements to be within normal limits, and the cervix 4 cm. dilated. Membranes were ruptured artificially to improve labor. Labor progressed slowly but normally, and nembutal grs. 3 was given for sedation, in addition to the medication on admission. At 7:00

P. M. on July 1, thirty hours after admission, she was delivered spontaneously of a living child, weighing eight pounds twelve ounces.

"The blood pressure following delivery remained around 190/160, and the degree of drowsiness continued to increase until fifteen hours postpartum, when the blood pressure dropped to 140/120. She then became cold and clammy with Cheyne-Stokes respiration. Five hundred cc. of 10 per cent glucose in distilled water were given and the BP soon rose to 180/140 with considerable improvement in respiration. However, four hours later she developed a massive pulmonary edema and died at 12:30 P. M. on July 2, eighteen hours postpartum. Following the onset of pulmonary edema, she was given 4 cc. (grs. 3) of digifolin intravenously."

These work sheets are mailed in groups of twenty-five around to the individual members of the committee who study them, make notes and mail them on to the next member. When the sheets get back to the State Board of Health they are coded and put on punch cards which will be available for statistical study. To date 125 cases have gone through the mill or are in transit. These are too few to treat statistically but I thought it might be interesting to review them at this time. The following are my own impressions and are, therefore, unofficial. I wish I could give you the opinion of the committee, but the committee has not met for final action on the cases. Some of the cases, I am sure, will be classified as medical or surgical deaths and not as obstetrical at all. Several were pneumonia deaths, the pneumonia starting antepartum, and the pregnancy was just an added burden. One, I recall, was an ectopic, who died after an operation for pelvic inflammation one month after her first discharge from the hospital. Whether this was an obstetrical or a gynecological death is a question. The great snow undoubtedly played a part in our mortality for 1940, as several women who died could not be reached by doctor or midwife.

Figure 4 shows the place of residence of all the fatal cases since December, 1939. The black belt and the mountainous districts are well represented, which fits in with the growing belief that maternal mortality is as much an economic problem as it is a medical one. Figure 5 shows the causes of death as given on the death certificates. As you see, there were forty cases of toxemia of pregnancy. Even if the fifteen abortion deaths and the three from septicemia be added to the twenty septic deaths, the septic deaths would still not equal the number of toxic deaths. This is contrary to most maternal mortality figures, as most studies show sepsis to lead in the causes of maternal deaths. It shows the importance of establishing more prenatal clinics in Virginia. There were ten deaths from postpartum hemorrhage, nine deaths from pneumonia and nine from pulmonary em-

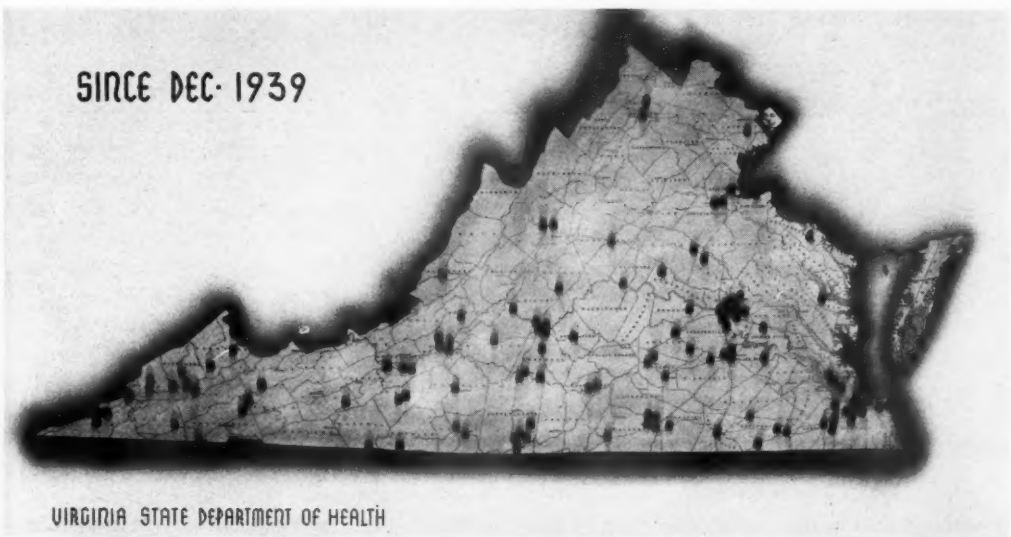

Fig. 4.—Place of residence of each maternal death.

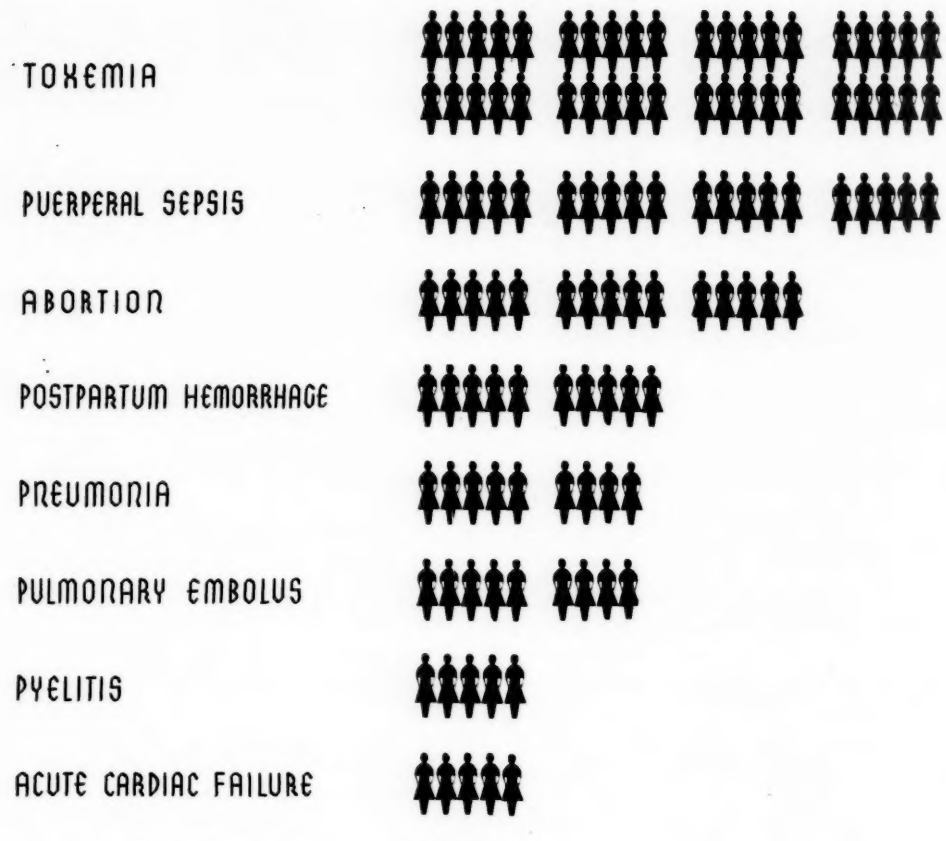

Fig. 5.—The causes of maternal deaths in first 125 cases.

bolus. Both of these groups are open to some question. My own belief is that when pneumonia begins during pregnancy it should be classed as a medical death. As to the diagnosis of pulmonary embolus, I am rather skeptical unless it is supported by definite X-ray evidence or autopsy findings. The remaining

twenty deaths are divided between pyelitis, acute cardiac failure, premature separation of the placenta, obstetric shock, septicemia, placenta previa and mesenteric thrombosis, and, while one might question the diagnosis in some of them, even with corrections they would still be relatively unimportant. It would probably be better to put the two placenta previas in the hemorrhage group as most likely that group contains some other cases of placenta previa. The mesenteric thrombosis is extremely interesting and the doctor who had it ought to report the case in detail. But, even if he taught us how to recognize and to cure it, our results would not be greatly benefited.

The biggest problem that confronts us evidently is the treatment of the toxemias of pregnancy. It has long been recognized that deaths from toxemia are entirely preventable. The routine determination of the patient's blood pressure, the examination of the urine and recording her weight will give one warning of approaching danger in plenty of time to prevent a serious manifestation of the disease. That is so elementary that I need hardly mention it here. The problem is to get this knowledge over to the women who are going to have the babies. From our present review it is evident that the doctors are not doing all that they should to get it across. Take the sample case that I just showed you. The patient was first seen at seven months and was in good condition. Blood pressure was 120/80 and Wassermann was negative. She returned at intervals of two weeks. When her blood pressure rose to 140/90 and a trace of albumin appeared in the urine, bed rest, and a low salt and pork-free diet was advised and the patient was instructed to return at weekly intervals. The patient was not seen again for three weeks and was then definitely pre-eclamptic. This doctor lost a golden opportunity of saving this patient's life because he evidently did not impress upon her the gravity of her condition in the first place and had a poor follow-up system in the second place.

The curative treatment of toxemia as exhibited in these charts is open to serious criticism. Of course, it must be borne in mind that these represent the failures, and that while some of these were evidently mismanaged there were hundreds of others treated successfully. It seems to me that toxemia in Virginia has been treated either with utter indifference or else has been over treated. As an example of the former, one record quotes the doctor to the effect that the patient neither spoke nor showed any interest in her surroundings after delivery and when he called to see her the next day he found her dead. As an example of the other extreme I cite the following: The patient was seen first by the physician about one and one-half hours after delivery. She was complaining of a severe headache and had generalized edema. Had convulsions prior to the arrival of physician and after that time had other attacks. Two doses of one-half grain of morphine were given. No convulsions occurred after the morphine. Several tablets of migraine No. 1 (contain caffeine) were given along with 20 grains of sulfanilamide. Forty grains of sulfanilamide were left with the family for later administration. At the request of the family, the patient was sent to the hospital. Admitted with a temperaure of 99, pulse 120, dyspnea, edema, coughing up frothy, blood tinged mucus. Had rales over the entire right lung and base of left lung anteriorly, blowing systolic murmur, confused mentally. Treatment: Magnesium sulphate 10 cc. of 25 per cent solution intravenously. One dram of tincture of digitalis *stat.*, and 10 drops *q.* four hours, started on the second hospital day. Urotropin grs. x t.i.d. On the fourth hospital day digalen, amp. i, and repeat in four hours. Fluids taken by mouth. Pulse went to 150 on the fifth day. Because of restlessness on the eighth day she had 1/4 gr. morphine and later in the day 20 cc. of 25 per cent solution of magnesium sulphate. She was unable to swallow for one-half hour after the magnesium sulphate but seemed to recover later. Restlessness was marked later. A period of quiet was then followed by restlessness. Morphine grs. 1/4 at 9:30 P. M. Metrazol at 10:50 P. M. at which time death occurred. Death followed a period of Cheyne-Stokes respiration and cardio vascular collapse. From the available information it is difficult to surmise what was going on in the patient and what was the immediate cause of death and it is equally difficult to understand the rationale of the various treatments. I cannot understand why this patient should have been given sulfanilamide, the intravenous magnesium sulphate or the metrazol.

The musculature of the heart, already weakened by the toxemia, frequently does not stand the additional load of large quantities of intravenous fluids. This is well shown in the record selected at random, or in the following case, although in the latter there are the added errors of chloroform anesthesia and unnecessary operative interference.

"This sixteen-year-old, single colored primigra-

vida, started in labor spontaneously on the evening of May 9. She had had no prenatal care. After having been watched in labor by a midwife for twenty-four hours, a doctor was called because no progress had been made. She was first seen by the physician at 10:00 P. M. on May 10.

"At the time of the physician's first visit her B.P. was 140/90, pulse 90. Her general condition seemed good. There was no cervical dilatation or effacement on rectal examination. The head was engaged. Fetal heart sounds were in the R.L.Q., rate 140 per minute. Uterine contractions of good quality were occurring *q.* 3 minutes. Morphine grs 1/4 was given to promote rest. On the following morning the cervix was partially effaced and 3 cm. dilated. B.P. 150/100; F.H.S. same. The labor pains had been irregular during the night, and she had gotten some rest. The labor at this time was not particularly active. Nembutal grs. 3 was given. At 4:30 P. M. on the same day (eleventh) the patient's condition was worse. Her B.P. was 220/140 and pulse 130 per minute. The F.H.S. had increased in rate and were irregular. There was no change in the condition of the cervix. She was given morphine grs. 1/4 and referred to the hospital.

"On admission to the hospital at 6:30 P. M. on May 11, her B.P. was 180/120. The pelvis was checked and found to be ample, tuber ischii 7½ cm. The cervix was nearly completely dilated with the head in the mid-pelvis. Nembutal grs. 3 was given soon after admission.

"Cesarean section was considered, but delivery from below was thought to be preferable. She had now been in labor for forty-eight hours, twenty-four hours of which had been irregular and inactive. Soon after admission an attempt was made to deliver the patient with midforceps, but with reasonable amount of traction no progress was made.

"She was put back to bed and given 400 cc. of 10 per cent glucose in normal saline by venoclysis. Her B.P. remained around 145/90 following this attempt at delivery, which was lower than previously. Soon after receiving the fluids she developed pulmonary edema. Digifolin 1 cc. was given intravenously and 1 cc. intramuscularly. Atropine 1/150 was given by hypo.

"She was seen by another physician in consultation and, although her condition was poor, immediate delivery was decided upon. She was delivered at 1:00 A. M. on May 12 with axis-traction forceps of a still-born, full term male from a position of persistent occiput posterior. An episiotomy was done, which extended to a third degree laceration. The delivery was done under chloroform anesthesia. Her condition remained very poor during delivery and she died at 1:20 A. M. while the perineorrhaphy was being done, seven hours after admission to the hospital and twenty minutes after delivery."

Another technical error that I have noted is the giving of pituitrin to toxic patients. The following is an example of this:

"*First Physician:* Saw patient because she was reported to have fallen while she was in the yard. At the time of the arrival of the physician, an occasional heart beat was noted. He gave ammonia by inhalation. As soon as she was able to swallow, the patient was given nitro-glycerine gr. 1/100 and digitalis. The amount of digitalis was not known. 'When the baby would move the heart of the mother would stop.' This was specified as the baby that caused the heart to stop and it had nothing to do with uterine contractions. At the time of arrival of the physician, there was nothing to indicate that she was in labor. This physician had delivered the patient of her first baby. Since that time, the husband had delivered eight babies but did not claim to be a midwife. He told the physician that his wife was at term. With the above information, the history from the husband that she had convulsions before the arrival of the physician and the fact that the patient's 'heart was bad,' pituitrin induction of labor was started. Three doses of pituitrin, twenty to thirty minutes apart, were given. After the third dose the patient stated that she had pain in her back. 'This was the best news up to this time for emptying of the uterus was the only hope.' With this much encouragement three other doses of pituitrin on the same schedule as before were given. The physician arrived at 4:30 P. M., and the delivery occurred at 6:50 P. M. There was no additional damage to the perineum. The placenta was delivered by the modified Crede. The baby was thought to weigh about ten pounds. The patient seemed to be in fair condition following delivery. The time spent with the patient was not stated, but the physician was called again to see her at 8:30 P. M., because of convulsions. He found her in an attack. She was given some 'kidney medicine', bromides and sweet spirits of nitre. The amount of this that was swallowed was not known. 'The patient's jaws remained rigid and the convulsive

attack continued.' The family called a consulting physician who sent the patient into the hospital without further medication.

"The patient was admitted to the hospital July 3, 1940, at 12:30 A. M., moribund, with a history from the husband of having had three convulsions before delivery and two after. The pituitrin given was as the original physician had stated. On admission the patient was given 800 cc. of 5 per cent glucose solution in distilled water I. V., and 20 cc. of 10 per cent magnesium sulphate solution I. V., and one capsule gr. 1½ of seconal by rectum. The blood pressure on admission was 190/80, pupils were constricted, systolic murmur at the apex, heart enlarged, edema of the lower extremities, uterus well contracted. No urine could be obtained. No laboratory work was done. No convulsions occurred after admission. The patient remained comatose. She received no other medication. She continued to grow weaker and died at 5:30 A. M., five hours after admission to the hospital."

The giving of a general anesthetic to a toxic patient was responsible for a considerable number of deaths. The following is a good example of this: A fifteen-year-old primigravida was admitted to the hospital for Cesarean section on account of cephalopelvic disproportion. Her blood pressure was 196/114. A section was done under ether and eighteen hours later she had a general convulsion. She had seven more convulsions within three hours. Twenty cc. of a 25 per cent solution of magnesium sulphate were given intravenously, followed by 1,100 cc. of a 5 per cent glucose solution. An hour and three-quarters later she was given a second dose of magnesium sulphate, followed in an hour by 1,000 cc. of 10 per cent glucose solution. All told she had twenty convulsions, one gastric lavage, three doses of magnesium sulphate and 5,100 cc. of glucose solution intravenously, and died 63½ hours after delivery. Had the section been done under local anesthesia, she probably would not have had convulsions, and the prognosis would certainly have been better.

Poor judgment was shown in attempting complicated surgical procedures upon toxic patients when simpler ones would suffice. For instance, "A twenty-seven-year-old colored multipara was admitted to the hospital on July 4, referred by a distant prenatal clinic because of an uterine pregnancy of seven months, complicated by hypertension. History obtained from clinic record revealed that on June 5 B.P. was 170/110 and there was four plus albumin in the urine. On the day of admission B.P. was 260/170 with four plus albumin in the urine. There was generalized edema. The patient complained of severe headache, blurring of vision and giddiness. The clinic record showed that in her fourth pregnancy there was hypertension and albuminuria. This pregnancy terminated in a normal spontaneous delivery of a full term living child. Examination on admission to hospital revealed marked edema of both lower extremities, abdominal wall and face. Uterus was enlarged to size of a seven months pregnancy with foetal heart sounds in LLQ. B.P. 270/170. Catheterized specimen showed 3-plus albumin and many granular casts. RBC 4,550,000, Hb. 88 per cent, WBC 12,800, Kline negative. Blood chemistry studies revealed blood sugar 78, NPN 32, uric acid 4.2, cholesterol 342, total protein 4.8, albumin 2.5, globulin 2.3. Kidney function tests: PSP total output for two hours was only 48 per cent, 8 per cent of which was in the first fifteen minutes. S.G. of Mosenthal tests varied between 1.012 and 1.017. Electrocardiogram tracings were within normal limits. There was moderate enlargement of the heart and thoracic aorta on a seven-foot film. Studies of the optic fundi revealed advanced arterio sclerotic changes in the fundal vessels with scattered exudates and hemorrhages throughout.

"Therapy in the hospital consisted of bed rest, salt-free diet, phenobarbital gr. ½ t.i.d., and magnesium sulphate by mouth every other day. Under this therapy there was a marked diminution of the generalized edema and subjective improvement. However, there was no significant change in B.P. It was decided that pregnancy should be terminated.

"She was operated upon on July 11, seven days after admission, at which time a low classical Cesarean section was done, and the patient subsequently sterilized under spinal anesthesia, using 150 mgm. of novocain crystals dissolved in spinal fluid. She was delivered at that time of a premature living male weighing four pounds.

"The B.P. and pulse remained fairly constant on a level of 190/150, and 100 respectively during the entire operation. One hour after returning to the ward the B.P. suddenly dropped to where it could not be gotten, and patient went into shock. Ephedrine gr. ¾ and 500 cc. of glucose in distilled water was given, and the foot of the bed elevated. B.P. returned to 130/90 but, after a short while, again

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dropped. B.P. continued to drop in spite of all therapy and she died six hours following operation. The collapse was thought to be due to a circulatory collapse. There was no evidence of external or internal hemorrhage." This beautifully worked up case was spoiled by too much surgery. How much better it would have been had the surgeon simply ruptured the membranes and allowed the patient to deliver herself.

Finally, the clinics sometimes fail to act on their own findings. Here is a forty-two-year-old colored married multipara who was first seen in a prenatal clinic in her third month of pregnancy. Examination revealed an uterine pregnancy of three months with a normal pelvis and complicated by a hypertension (160/90), a trace of albumin in the urine, and slight edema of the lower extremities. Pulse was rapid. All previous pregnancies had been normal. Twelve children were living and one dead. None were still-born. No record of previous hypertension. To make a long story short, the patient was put on digitalis and the pregnancy was allowed to continue uninterrupted, although there was no improvement in the hypertension or albuminuria. She was delivered by a midwife of a still-born fetus and died two hours later. My own feeling is that this pregnancy should have been terminated when the patient was first seen, but in any event provision should have been made for her delivery.

One of the things that impressed the Philadelphia group in their study of maternal deaths a few years ago, was the frequency with which the uterine cavity was invaded, especially in the treatment of abortions. They laid down the dictum that the pregnant or recently pregnant uterus could be invaded once possibly with impunity but a second invasion usually meant the death of the patient. That teaching should be taken to heart by the Virginia obstetricians. I could cite a number of examples of the violation of this rule. The following is a typical example: This twenty-three-year-old colored multipara consulted a private physician first about two weeks before delivery. She seemed to be in good condition at that time except for a positive Wassermann for which she was being treated. She was next seen by the physician a few hours after being delivered by a midwife. There had been an excessive amount of bleeding during labor and the bleeding continued. The placenta was delivered in pieces (manually?). The bleeding stopped and packing was not necessary. In the next few days the patient passed pieces of the placenta of various sizes. About five days after delivery a D. & C. was done in the home because of bleeding. The patient was referred to the hospital three days later. RBC 2,480,000, Hemoglobin 45 per cent, WBC 29,450. The urine contained many hyaline and granular casts. In spite of blood transfusions and sulfanilamide, the patient died on the seventh hospital day.

Operative delivery has been responsible for a large proportion of the septic deaths. There was one that followed a version done for a prolapsed arm. The mal-position was discovered after the patient had been in labor thirty-six hours and the operation was done twelve hours later in the home and without an anesthetic. Three of the septic deaths followed Cesarean section, but this is not all the picture, for a number of the eclamptics who were delivered by section really died of infection.

While I am on the subject of puerperal sepsis, I want to sound a word of caution about the vaginal douche. At least one woman in this series owes her exitus to this form of treatment. This was a thirty-five-year-old colored XII-para whose membranes ruptured five days before onset of labor. Seen daily by midwife from then until onset of labor. After four hours of very hard labor midwife called the doctor, who arrived after the baby was born. Midwife above average intelligence, good past record, attends average of thirty deliveries each year; states she did not do any vaginal examination, gave no douche or enema. This confirmed by family. Placenta complete and examined by doctor. No vaginal examination by doctor or anyone at any time. Blood loss much less than average. Third day postpartum marked rise in temperature and chill, and midwife called doctor, who ordered lysol douche and S.S. enema—by telephone. Midwife states she gave douche only because the doctor insisted, that she is taught not to give douches. Used lysol ℥i to one quart of warm water, with "greenish return." After this temperature went higher, lochia scant with very foul odor. Progressive weakness. No blood culture. No effort to hospitalize. Doctor saw case daily and gave large doses of sulfanilamide.

Postpartum hemorrhage is the third great captain of maternal deaths. As with toxemia and infection, an ounce of prevention is worth a pound of cure.

While we cannot prevent all cases of postpartum hemorrhage, as we can all cases of toxemia and all serious cases of infection, we certainly can prevent those that arise from operating through an undilated cervix or, what is the same thing, a pituitrin-precipitated birth under the same circumstances. No. 36 C is a case in point. The doctor was first called to see this thirty-three-year-old white XIII-gravida at 7:00 A. M. on the day of death. She was at term, in questionable early labor, and had had no prenatal care. The doctor instructed the family to call him back when active labor started. He was next called to see this patient about 3:30 P. M. and found her in active labor. According to the family, she had had about two hours of good active labor with no bleeding or other complications. At 3:45 P. M., shortly after arrival, the doctor gave her pituitrin ½ cc. About ten minutes later, a full term living child was delivered spontaneously. About fifteen minutes after delivery the patient started bleeding rather profusely. She was treated for shock. The bleeding continued and she died about three hours following delivery from acute blood loss.

Many cases of postpartum bleeding, of course, cannot be prevented, but the doctor should be prepared to cope with such an emergency should it arise. There is no need of my describing the various means of stopping uterine hemorrhage, such as holding the uterus between the two hands with pressure cephalad to put the uterine arteries on the stretch, compression of the abdominal aorta, the giving of pituitrin and/or the water soluble extract of ergot, or the ways of combating shock, such as elevation of the foot of the bed, bandaging the limbs and keeping the patient warm. I do want to emphasize the importance of having handy four-inch rolls of sterile gauze for packing and facilities for the intravenous administration of glucose solution or blood. Earlier in my paper I criticized the over-zealous use of fluids intravenously in toxemia. No one could possibly find fault with its use here unless it were used and no effort be made to stop the hemorrhage. Certain types of cases, notably polyhydramnion, multiple pregnancy, fibroids, and placenta previa are especially likely to be complicated by hemorrhage. In such cases donors should be located and the bloods matched so that there will be no delay should occasion to give a transfusion arise. I stress the gauze packing because so often I have seen patients brought into the hospital with the vagina filled with wads of cotton. In this connection, I wish to bring up for discussion the question of packing preparatory to bringing a patient with placenta previa into the hospital. At a number of medical meetings, when this was under discussion, I have asked if any one had seen a patient bleed to death from an initial hemorrhage in placenta previa. So far, I have never gotten an affirmative answer. My own feeling is that the risk of infection from the packing far exceeds the risk of serious antepartum hemorrhage, and that the best thing to do is to give the patient a dose of morphine, and to move her to the hospital without packing. A vaginal or even a rectal examination is contraindicated until you have everything in readiness to control the hemorrhage that might result.

In conclusion, it is evident that the great majority of the maternal deaths that are occurring in Virginia are preventable. They can be prevented, and I am confident they will be prevented when the people become informed of the real dangers. On the other hand, the doctors are not entirely without blame. They are committing errors, both of commission and omission, in the treatment of the emergencies that should not, but do, arise. If the patient does not know enough to keep from having eclampsia, her doctor should do his best to cure her of it. With good judgment, and good technic, there should be no fatal cases of sepsis following term pregnancies. The post-abortal deaths present a problem too big for the medical profession to solve alone. All too frequently the doctor is called in to lock the stable door after the horse has been stolen. The hemorrhage cases are a real challenge to us doctors. With better preparation, more skill, and a better understanding, we can cope successfully with the majority of them.

616 Medical Arts Building.

XUM

SPONTANEOUS PNEUMOTHORAX OF THE NEWLY BORN—
With Report of a Case.

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Spontaneous pneumothorax is being reported more and more frequently in both adult medical and pediatric literature. In the several series of apparently healthly adults with this condition reported by Wilson,[1] Perry,[2] and Blackford[3] there were instances of recurrences and bilateral pneumothoraces. Tuberculosis was ruled out in the majority of these cases by negative roentgen and tuberculin studies. Exertion seemed to have little or nothing to do with the onset.

These observations suggest some underlying pathology or congenital defect of lung tissue. Kjaergaard[4] said that healthly lungs *in situ* will stand a pressure of 200 m.m. Hg. He demonstrated in pathological specimens valve vesicles or blebs into which air could enter but from which it could not escape. The pressure in some of these became so great that the bleb ruptured. This valvular apparatus was due to distortion of lung tissue by scar or emphysematous tissue, or by the formation of congenital cysts.[5]

The latter term (congenital cyst) is not a good term, for, as Anspach and Wolman[6] point out, congenital air cysts of the lung are fluid containing at birth, and their post-natal behavior depends principally on mechanical factors. If there is no communication with a bronchus the cyst contains fluid; if there is free communication with a bronchus the cyst becomes a non-expansile air cyst after birth; if there is a one-way valve mechanism at the orifice of the communicating bronchus the cyst becomes the expansile "balloon" type of cyst. Therefore, the only cysts that are dangerous to the patient are those containing air, and, since "congenital" cysts do not contain air, it would seem well to drop the qualifying adjective "congenital" and refer to them as fluid cysts or air cysts.

Although it is generally supposed that the immediate cause of spontaneous pneumothorax is rupture of a subpleural bleb, Hamman[7, 8] has recently reported a different cause. He describes mediastinal emphysema associated with pneumothorax. This train of events is begun by interstitial emphysema of the lungs. Air escapes into the surrounding connective tissue, mostly around the arteries, and travels along the fascial planes toward the mediastinum. Having reached the hilus it spreads out into the the mediastinum. It may then cause rupture of the delicate mediastinal wall and enter the pleural cavity, causing pneumothorax. By direct experiment it is easy to force air from the mediastinum into the pleural cavity but it is never possible to force air from the pleural cavity into the mediastinum.

Hamman also says that it is possible for the escaped air to travel toward the pleural surface and there produce a pleural vesicle which may later rupture. However, the former mechanism is more likely, as judged by the experimental work of Macklin,[9] who used pressures of from 10 to 220 m.m. Hg. in his experimental work on animals to cause pulmonary emphysema.

Since Ruge's[10] first description of spontaneous pneumothorax in newly-borns it has been recognized with increasing frequency, especially since the roentgen ray has come into common usage. The diagnosis is most difficult without an X-ray. Stein[11] reported such a case which was subsequently found to be a large air-containing cyst.[12]

Many cases have been published under the title, spontaneous pneumothorax of newly-borns, which were probably due to disease of lung tissue beginning some time after birth, such as pneumonia, abscess, tuberculosis, pertussis, measles, diphtheria, empyema, gangrene, bronchiectasis, foreign body or infarct. Silver[13] says: "It would seem that the term could be better applied if it were not extended so as to include the entire neonatal period, ordinarily reckoned at about one month, but were limited to the period between birth and the establishment of the normal vital processes. This period then would be limited to the first four or five days of life, and lesions that made their first appearance after this time might better be considered as disturbances having a separate cause."

Accepting this time limitation, then, the number of reported cases is twenty-one. They are as follows: Ruge[10] one, Flipse[14] one, Emmert[15] one, van Ebbenhorst Tengbergen[16] three, Tollkühn[17] one, Deissler[18] one, Hotz[19] three, Willi[20] one, Bertin[21] three, Donahoe[22] two, Storts and James[23] one, Silver[13] one, Rothman[24] one, Strongin[12] one.

CHARACTERISTIC ONSET

The child after birth breathes normally or has slight difficulty in respiration. The amount of dyspnea and cyanosis is no more than that commonly observed in newly-borns. There may be slight respiratory embarrassment, and atelectasis is usually the diagnosis. At some time during the first week the child suddenly develops respiratory and circulatory difficulty.

The best procedure is careful observation (with or without oxygen and carbon dioxide inhalations) for the neutral or positive pressure in the pleural cavity facilitates closure of the ruptured pleura. This failing, aspiration of air with a syringe, or some apparatus for the continuous release of the air which is under positive pressure, may be attempted.

CASE REPORT

The patient was the first child of a twenty-five-year-old white mother who had always been healthy. Her Wassermann reaction was negative. The pregnancy was full term and uncomplicated. Labor lasted thirty hours but was otherwise uneventful. Obstetrical analgesia consisted of three grains of nembutal and one two- hundredth (1/200) grain of hyoscine hypodermically. The latter drug was repeated at the end of an hour, but was given four and a half hours before birth took place. Birth occurred spontaneously from the R. O. A. position at 7 A. M. July 18, 1939.

The baby was somewhat cyanotic at first but soon breathed well and appeared to be a normal male baby. His birth weight was seven pounds three ounces, and length, twenty inches.

That evening at 6 P. M. he was put to the breast routinely and nursed vigorously. Afterwards it was noticed that his color was slightly cyanotic, but became natural as soon as he was picked up. The next morning he was moderately cyanotic and his respiration was shallow and rapid. Oxygen and carbon dioxide inhalations were begun, and were continued off and on throughout the morning. On physical examination distant puerile breath sounds were heard over the left lung as well as impaired percussion note and crepitant rales throughout the left chest. As the heart and right lung appeared normal it was felt that he had atelectasis of the left lung. A roentgenogram was made at 2:30 P. M. and showed in reality a large pneumothorax of the right chest, chiefly anteriorly with the heart and mediastinum displaced toward the left. Both lungs were opaque, due to compression. The lungs must have aereated at some time as the ribs extended horizontally rather than in a slanting position, seen in congenital atelectasis.

See Figures 1 and 2.

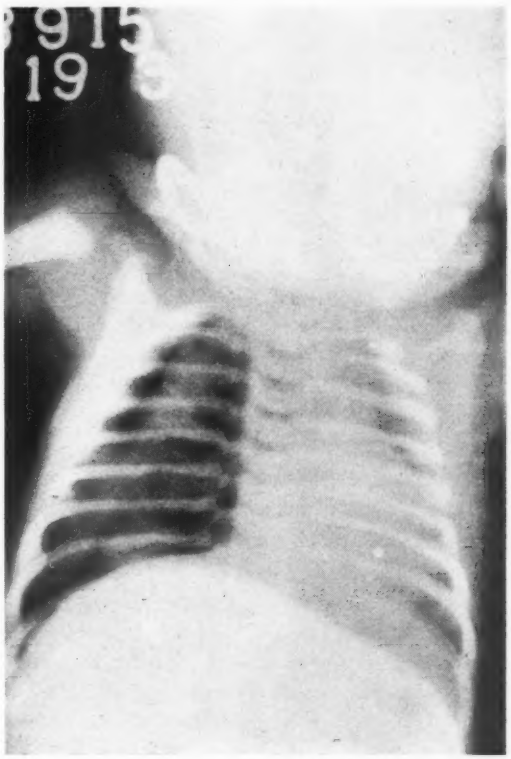

Fig. 1.

By this time it was apparent on inspection that he was breathing mostly with the left lung, and rapidly. The percussion note was tympanitic over the right chest anteriorly. Posteriorly it was equal on the two sides. Cardiac dullness and apex beat had shifted to the left. Very little air was heard to enter either lung. Crepitant rales were present

on the right posteriorly and on the left in front and back.

Forty cubic centimeters of air were aspirated from the anterior part of the right thorax. Cardiac dullness shifted back and he breathed more naturally. His color became pink even without the administration of oxygen.

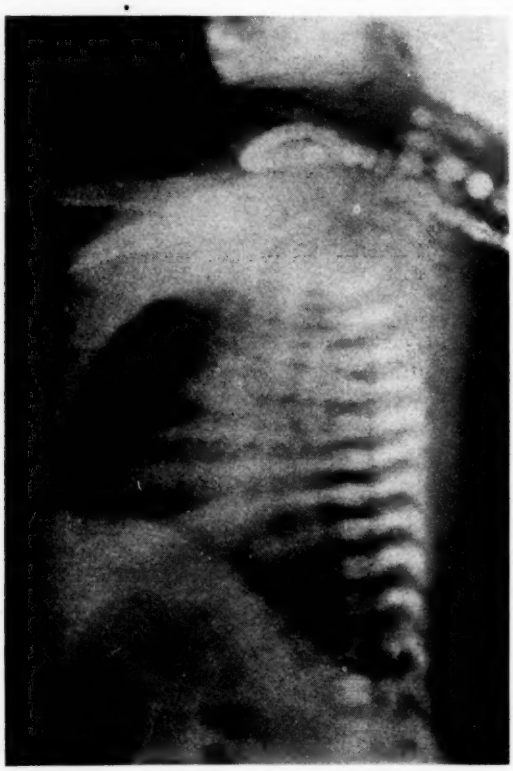

Fig. 2.

Again he was put to the breast and, during the course of nursing, became cyanotic. It was evident that some apparatus must be arranged to counteract the rapidly accumulating tension pneumothorax.

A twenty-gauge intravenous needle was filed off to three-quarters of an inch in length and inserted between the third and fourth ribs in the anterior axillary line on the right, and anchored to the chest wall with adhesive tape. A flexible rubber tube was attached to the needle and the loose end immersed in a jar of water on the floor. Much air bubbled through the water, and again the baby improved as before and was able to breathe comfortably without the administration of oxygen.

All of this delay took valuable time and proved weakening to the baby. He was given normal saline and 5 per cent glucose solution by hypodermoclysis but had consumed little real sustenance. He died at 10:30 P. M. apparently of exhaustion.

The interesting postmortem findings were limited to the thorax; hence, the rest will be omitted. Both pleural cavities contained negative pressures. The heart and mediastinal structures were in normal position. Both lungs appeared to be normal in size and position. There was no evidence of emphysema of the subcutaneous or mediastinal tissues. Several emphysematous blebs were scattered over the surface of both lungs, but no rupture of any of these could be demonstrated. No blood or excess fluid was found in either pleural space.

On palpation the lungs were found to be normal for a newly-born. The heart and pericardium were normal. The heart weighed twenty grams and the lungs weighed thirty grams each. The lungs were equally distended and their consistency was compatible with those of newly-borns. Aside from the above mentioned emphysematous blebs, no abnormalities were demonstrated. They both floated well above the surface of water. On section the bronchial tree was found to be clear of obstruction. The cut surfaces were of the usual pink color.

Microscopic sections showed partial atelectasis and areas where the alveolar walls had broken, forming emphysema. Several of these were just beneath the pleura, but in no place was a rupture through the pleura seen.

Fat stains demonstrated large masses of caseous material filling many of the bronchi. This appeared to be vernix caseosa. Also large epithelial cells were seen in the alveoli much resembling those seen in amniotic fluid. Bacterial stains showed no definite flora. The pathological interpretation was: Areas of aspiration pneumonia.

CONCLUSIONS

Cases of spontaneous pneumothorax of the newly-born are fortunately rare, but because early recognition and treatment is of such importance they must be kept in mind at all times. The mortality is much higher in the younger than in the older group where vital processes of life are better established.

In any case of cyanosis in a newly-born one should think of the following: atelectasis, congenital malformation of lungs or heart, herniation

of the diaphragm, and pneumothorax. A roentgenogram should be made, as this helps to differentiate these conditions quickly. If pneumothorax is present, early appropriate treatment might go far toward saving the life of the patient.

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Medical Arts Building.

LABORATORY PROCEDURES IN THE DIFFERENTIAL DIAGNOSIS OF JAUNDICE.*

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No single year passes without the usual number of papers on the differential diagnosis of jaundice, and I can refer you to no more barren field of medical literature. Each review cites the literature, bemoans the lack of a procedure capable of measuring all of the functions of the liver, and concludes with the advice that "after all, a careful history and physical examination are most essential."

Fortunately there are exceptions to this. These are the contributions of Quick on the hippuric acid test, the clinical experience of Snell, Boyce, White and others with this test, and the work of Watson and Sparkman on urobilinogen excretion.

Although history and physical examination play an important part, as in any disease, the actual di-

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agnosis in jaundice is largely dependent upon the laboratory. Lack of appreciation of the help to be found in the laboratory in differentiating the several types of jaundice probably has resulted from the confusion caused by the multiplicity of tests of liver function advocated and the frequently conflicting results encountered.

An intimate knowledge of the pathology involved in the various states of jaundice is necessary, if the physician is to properly interpret the results of laboratory procedures.

Non-obstructive jaundice may be represented as including the hemolytic anemias, acute and subacute yellow atrophy, catarrhal jaundice, Weil's disease, and the toxic hepatoses associated with drugs, poisons, and toxic conditions. With the exception of the blood dyscrasias these cases all have an essentially similar underlying pathology: destruction of liver cell activity as a result of necrosis of liver cells or impairment of the function of these cells, especially those about the central veins. On the other hand, it is the biliary system that is involved in obstructive jaundice rather than liver cells themselves. The exceptions are those cases of long standing infection where there frequently is the added factor of secondary hepatic injury with some disturbance of liver function. It is this last group which is the source of confusing results in liver function tests.

Because of these discrepancies we have been too prone to dismiss the tests for liver function as being of little value. Or, we have studied our jaundiced patient with a variety of procedures without a proper critical evaluation of the divergent results.

Ask the average internist or surgeon what he thinks of tests for liver function—and it is upon the state of liver function that we must depend in the differential diagnosis of jaundice—and, usually, he will reply without hesitancy that he has no confidence in them. In contrast, this same internist or surgeon will profess a complete faith in the commonly accepted tests for renal function. Is it not possible that our greater confidence in the kidney function tests is due to the fact that we can check our findings by doing a careful urinalysis, while in the case of the liver we are dependent on the function test alone? Then, too, we have learned to interpret the high non-protein values due to causes other than renal disease, while lack of clinical experience still confronts us in interpreting liver function tests.

Many tests have been advocated as useful in the differential diagnosis of jaundice. More recently, however, attention is being focused on those procedures which appear to measure the ability of the liver to handle substances the conjugation of which is the duty of the liver alone. The older dye injection tests are based on this principle, but, while they, and especially the bromsulphthalein test, are valuable as a gauge to liver function, they offer little help in the presence of jaundice.

Today the Quick hippuric acid test is practically universally accepted as the most accurate gauge of liver function. Although, as with other procedures, results may prove confusing where there is both obstruction and secondary liver disease, it is to be recommended as the most satisfactory test available. An excess of benzoic acid is given by mouth or intravenously and the ability of the liver is measurable in the amount of hippuric acid recovered in the voided specimen. Benzoic acid is conjugated to hippuric acid by glycene in the liver. In parenchymatous liver disease with jaundice hippuric acid excretion is greatly diminished. It is normal in simple obstruction. In those cases of obstruction with decreased excretion, the surgeon should appreciate this warning of associated liver disease and inaugurate intensive pre-operative treatment.

Following the work of Watson and Sparkman there has been a revival of interest in the test for urobilinogen in the urine and feces. Formerly used almost exclusively as a measure of intravascular red blood cell destruction, the test is thought to have considerable value as a measure of liver function. Absence of urobilinogen from the urine is the best known indication of complete biliary obstruction, and Watson considers very low values in the urine and feces practically conclusive of an obstructing malignancy. Excretion of the pigment is increased in all forms of liver disease, even in focal lesions, and is high as well in incomplete obstruction and increased blood destruction. As with all other laboratory procedures the physician, if he is to gain information from the test, must be acquainted with those factors which might alter the result. Among such factors are renal impairment, chronic passive congestion, pulmonary tuberculosis, and colon bacillus infection.

These two procedures are to be recommended as the most sensitive laboratory aids in the differential diagnosis of jaundice. They are also valuable in study-

ing the patient with suspected decreased hepatic function. To the criticism that they do not measure all of the functions of the liver, one can agree with Quick in his answer that "the clinical results with the hippuric acid test are such as to make these theoretical considerations matters to be left to erudite physiological discussion." As he points out, Snell and other clinicians are finding that the jaundiced patient with a 50 per cent reduction in hippuric acid is a poor surgical risk. The test is valuable not only in differentiating the types of jaundice, but also is helpful in indicating prognosis and in evaluating treatment.

Little is to be found in the literature concerning the value of the non-protein nitrogen determination in the differential diagnosis of jaundice. An elevated value is seen in the toxic hepatoses with enormously high levels especially in Weil's disease, while in obstructive jaundice the non-protein nitrogen is not elevated. This nitrogen retention is due in part no doubt to an associated interstitial nephritis which is demonstrable at autopsy in many of these cases. Agglutination tests for Weil's disease should be available for general use in the near future.

All patients with jaundice deserve a prothrombin determination if facilities are available. The procedure is not one, however, that can be done by any technician in any small laboratory. In addition to the information the test offers as to a possible hemorrhagic tendency, the prothrombin time may prove an indirect aid in differential diagnosis. A marked decrease in prothrombin would favor an obstructive jaundice.

There are many other liver function tests and more are being proposed. Most of these are too expensive or troublesome to be of practical value and none of them have demonstrated advantages over those recommended above. Of these the gallactose tolerance test is most deserving of mention. However, this procedure is more expensive and the possibility of outside factors, such as adrenal action, make it less reliable. It is of little value in chronic cases.

Total cholesterol determinations appear totally unreliable in differentiating the jaundiced states. Recent studies of the cholesterol esters are of research interest and are increasing our knowledge of body chemistry, but it seems doubtful that they will contribute materially to the differential diagnosis of jaundice. In conjunction with other tests low values are of some diagnostic interest in acute liver disease.

The Takata Ara reaction now is known to be an index of globulin increase rather than a measure of liver disease. And even in this latter role it has been replaced by the formol-gel test.

Phosphotase determinations have been advocated as valuable in the differential diagnosis of jaundice. The same increases noted in cases of obstructive jaundice are to be seen in bone destruction. Expressed in Bodansky units the normal values are quite variable. The relation of phosphotase to the liver is not known, and the test appears to have little to offer in the study of liver disease. High values may be found in obstructive jaundice.

The Van-den-Bergh reaction still holds a place in textbooks as a differentiative test in jaundice. It is supposed to give an indirect reaction in hemolytic processes and liver disease where the liver has not acted upon the bile pigment and a direct reaction with the increased pigment of obstruction. This qualitative action is disputed both from clinical observation and experimental work and it seems more probable that the several phases of the reaction are due to the concentration of bile in the serum rather than to any qualitative changes. As a quantitative gauge of jaundice the icterus index is more accurate and less complicated in performance. No diagnostic value is claimed for the icterus index, its principal use being in measuring latent jaundice and following the jaundiced patient. An increased icterus also accompanies carotinemia, but this amounts to only several units and is relatively unimportant.

One working in hematology cannot fail to become conscious of the association of a relatively constant blood picture with liver disease. Along with others I have noted the macrocytic red blood cell picture of cirrhosis. Further, and quite by accident, it was discovered that a reticulocyte rise is invariably associated with recovery from the jaundice of parenchymatous liver disease. Study of approximately one hundred cases of various types of jaundice has convinced me that a careful evaluation of the blood picture offers an amazingly accurate means of differentiating obstructive from non-obstructive jaundice and, in fact, of distinguishing the various types of toxic hepatoses.

The laboratory does appear to have available definite help for the physician who is puzzled by the jaundiced patient. In the hippuric acid test we have, I believe, a measuring rod for liver function as accurate as are the commonly used non-protein nitrogen

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and phenolsulphonphthalein tests in their measure of renal function. The trouble is not with the laboratory. It is with the clinician who has decided that liver function tests are of little value and denies himself and the laboratory the clinical experience with liver function tests which is necessary to substantiate their value. As a matter of practical importance it would seem that a liver function test would be of more value in a systematic study of a patient than would renal function tests. Not only have we had years of clinical experience with renal function tests, but also we know that a well done urinalysis is easily available as an indicator of the need for any further study of renal function. There is no such indicator in the case of the liver. Conceivably we have encouragement in the way of therapy to offer the patient with incipient liver disease, while I doubt our ability to alter the course of advancing nephritis.

805 West Franklin Street.

POSTPARTUM HEMORRHAGE.*

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Leading the list of causes of maternal death is sepsis, with hemorrhage running a close second. It seems impossible to definitely evaluate the real importance of hemorrhage as it so frequently constitutes a contributory factor in a septic death. The incidence of infection during the puerperium increases with an increase in blood loss. Hemorrhage is recognized as the cause of 13 to 15 per cent of maternal mortality.

Immediate postpartum hemorrhage is defined by DeLee as "all hemorrhage attending delivery of the placenta and during the first twenty-four hours". There is no agreement as to the amount of blood that constitutes the normal or physiologic postpartum blood loss. Ahfield reports 500 cc., Brandt 195 cc., Calkins 179 cc., and 222 cc., Pastore 244 cc., Plass 317 cc., Tarnier 600 cc., Tucker 300 cc., and Williams 343 cc.

The incidence of blood loss of 600 cc. or more varies from 2.5 per cent in a series of 800 cases reported by Calkins to 13 per cent in 1,000 cases reported by Williams.

A postpartum blood loss of 500 cc. may be well tolerated by one individual but not by another. There are factors other than the actual blood loss that must be considered, such as the individual's size and weight, the blood picture prior to delivery, her resistance and constitutional characteristics, the presence of toxemia, etc.

Pastore has very sensibly suggested that the blood loss be expressed in relation to body weight, the blood loss in cc. divided by the patient's weight in kilograms times ten, equaling the per cent blood loss. On this basis a 600 cc. blood loss in a patient weighing 60.0 kilograms would be equivalent to a 1 per cent hemorrhage, and the same would be true if a patient weighing 80 kilograms lost 800 cc. of blood.

By virtue of the fact that the expression of blood loss in terms of body weight takes into account an important factor in the toleration of blood loss it would seem worthy of adoption.

We are primarily interested in attaining the least possible blood loss and only academically so in determining the point of transition between the physiologic and the abnormal. However, the series reported by Calkins, having an average blood loss of 179 cc., certainly gives us a point to which we can direct our efforts.

We often think of postpartum hemorrhage as a distinct entity. With few exceptions the same causes producing the hemorrhage are present at every delivery. The factors influencing puerperal bleeding are many. Large doses of analgesia and anesthesia, a large baby, operative deliveries, abnormal situations of the placenta, mechanical interference with the contraction of the uterus produced by premature separation of the placenta, retained secundines or myoma uteri are among the recognized causes of bleeding.

Calkins, in a study of 700 cases, came to the conclusion that parity and the length of labor have little or no effect on blood loss. If an episiotomy is done, or if poor labor pains have been present, the average blood loss is increased 60 cc. For a large baby and a

*Read before the Alexandria Medical Society, March 13, 1940.

large placenta add 100 cc. to the average blood loss. He regards as the two most important factors in postpartum blood loss improper management of the third stage of labor and large doses of analgesia and anesthesia.

Today women expect to pass through labor with a minimum of pain. The physician who attempts to secure a complete and perfect analgesia in every case frequently finds that his reward is an atonic uterus. Difficult or instrumental deliveries prolong the duration of the anesthetic with its resultant uterine atony. I share the good fortune with some of you of having been able to observe a certain amount of normal obstetrics where little or no analgesia and only a small amount of ether was used. Uterine tone under these conditions is much better than when analgesia is profound and the anesthetic is prolonged.

It is necessary that we be guided by our own judgment in regard to the amount of analgesic drugs administered and to hasten as much as we safely can that part of the delivery during which the anesthetic is administered.

The work of Calkins has probably done more than that of any other to call attention to the management of the third stage of labor and to show that placental separation takes place earlier than was formerly supposed.

His routine of management is as follows: The care of the infant is entrusted to an assistant, or postponed. The physician directs his attention to the mother. The hand is placed on the uterus immediately after the birth of the baby and kept there constantly. The uterus immediately contracts and assumes a flattened discoid shape, which is maintained for a relatively short time. The shape of the organ then becomes globular. This indicates placental separation. The placenta should now be gently expressed without waiting for the rise of the uterus in the abdomen. This does not occur until several minutes later and is indicative of descent of the placenta rather than separation. At about the time the uterus changes in shape there is also a slight trickle of blood from the vagina. This sign is not regarded as positively indicative of placental separation but as confirmatory to the sign of change in shape.

Expression of the placenta should not be hastened unnecessarily but delayed expression of a separated placenta favors the formation of a larger retroplacental blood clot. Expression of the placenta is performed synchronously with a uterine contraction and is not attempted with the uterus in a flaccid state. The body of the uterus is then lifted out of the pelvis and constantly palpated by an assistant until the perineal repair is performed and the delivery completed. Usually pituitrin and ergot are administered at the completion of the second and third stages respectively. Using the change of shape as an indication of placental separation the duration of the third stage has been shown to be from three to five minutes.

From the time of delivery of the infant until placental separation occurs there are three main causes of bleeding. Perineal or vaginal lacerations constitute a source of bleeding which, although slight, will, if neglected, amount to several hundred cc. of blood. Frequently this bleeding can be controlled by pressure, but excessive bleeding from these sources should be controlled by immediately placing in the deep repair sutures.

Prior to placental separation bleeding, not accounted for by vaginal or perineal laceration, is probably of cervical origin. Cervical laceration sufficient to produce hemorrhage is a rare occurrence. When it does occur the bleeding is arterial in type and is independent of uterine contraction.

Partial separation of the placenta, perhaps resulting from a partial placenta accreta, may result in blood loss at this stage. If the flow is not too great, complete separation may be awaited, but the extent of the hemorrhage may make a manual removal of the placenta necessary.

The period from the time of separation of the placenta until this organ is expressed is an important one. Recognition of placental separation and immediate expression will prevent the formation of an unnecessarily large retroplacental blood clot. The practice of performing the perineal repair prior to expression of the placenta is one that is done entirely at the expense of the patient.

Following expression of the placenta, there are four chief factors that influence blood loss. Of these, uterine atony is most frequently encountered. If mild massage is not effective, 3 minims of pitocin which is protein free diluted in 2.5 cc. of normal saline, if given by vein, will be effective in from forty to fifty seconds. This solution may be kept over a period of time and has been found a stable one.

Prolapse of the fundus into the pelvis may cause a bleeding that is alarming because of its profuse and continuous flow. This may be corrected by lifting

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the fundus out of the pelvis. A vaginal tamponade, condemned by some, if placed in when it is determined that the uterus is firmly contracted and remains so, will serve to keep the fundus out of the pelvis and also to absorb the trickle of blood that invariably occurs and which prolongs the period required for the perineal repair.

Perineal, vaginal, and cervical lacerations must again be mentioned as contributing to the blood loss at this stage.

There are also special abnormalities that are encountered. Placenta previa, mechanical obstruction to uterine contraction resulting from premature separation of the placenta, myoma uteri and retained secundines, inversion of the uterus, placenta accreta and rupture of the uterus may be mentioned.

Pastore has made some very interesting correlations between blood loss and morbidity. As previously described, he expresses the per cent of blood loss as the blood loss in cc. divided by the patient's weight in kilograms times ten. He found that with blood losses below .3 per cent, morbidity was 4.5 per cent; with blood losses from .3 per cent to .7 per cent, the morbidity was found to be more than doubled; and with losses of 1.5 per cent the morbidity rose to 31.8 per cent.

On the third postpartum day when the cell volume was 40 per cent, morbidity was 4.5 per cent; when the cell volume was between 30-40 per cent, the morbidity was 7.5 per cent; and when the cell volume dropped below 30 per cent morbidity rose to 30 per cent. When hemorrhage in terms of body weight and cell volume prior to delivery are known, it is possible to predicate the cell volume on the third postpartum day. When this is predicated to be below 30 per cent, replacement of blood should be done in twelve hours.

In considering the treatment of postpartum hemorrhage I feel we should think first along the lines of prevention.

With exception of the few clinics at which special work is being done in regard to postpartum hemorrhage, there is usually no accurate means of determining the actual blood loss. An accurate and visible measurement of blood loss is important.

Local anesthesia, although not now widely used, possesses certain features that appear desirable from an obstetric point of view.

The importance of the management of the third stage of labor has been discussed.

Vitamin K administered to patients whom we anticipate will experience an abnormal blood loss may prove of value.

The treatment of choice in cases of severe blood loss is, of course, blood transfusion. Glucose and gum or glucose alone will provide supportive treatment until the blood can be replaced.

700 Prince Street.

CORONARY THROMBOSIS IN A TWENTY-ONE YEAR OLD MALE FOLLOWING HYPERTHERMY.*

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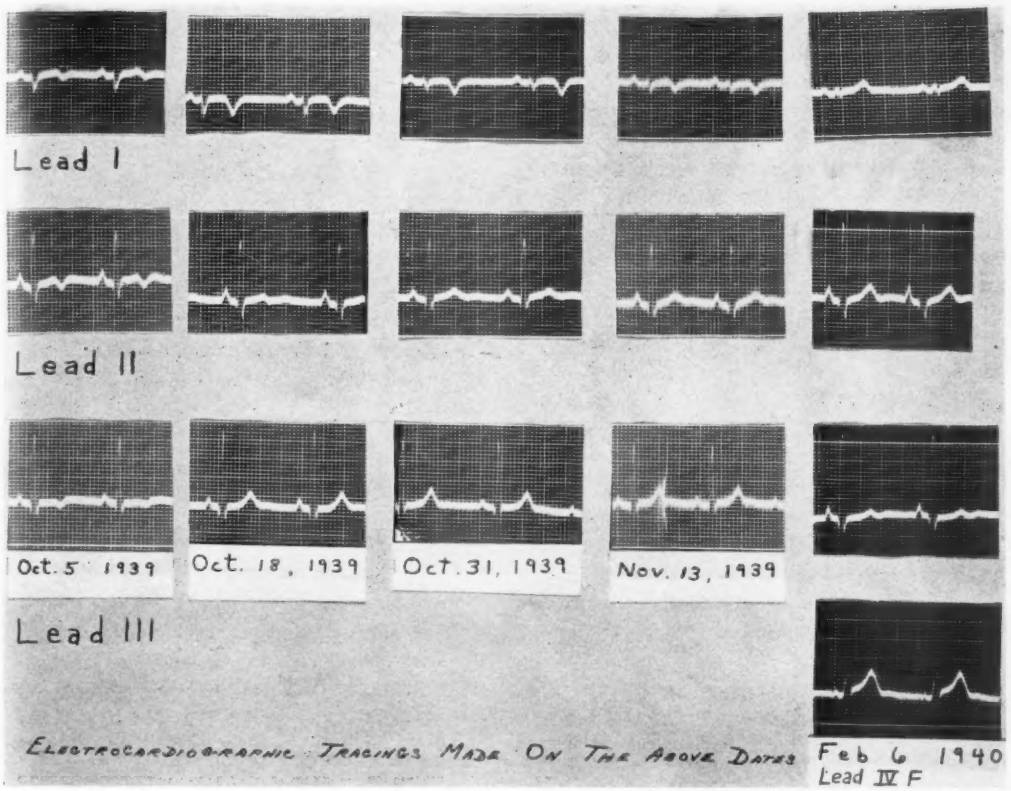
Within recent years increasing evidence has been accumulated to indicate that coronary disease is far more frequent in the young than was previously believed. Numerous cases of coronary thrombosis in young adults have been reported in the literature.[1, 2, 3, 5, 7]

The present case is reported with a view not only of adding another case to the literature but to call attention to a possible complication of fever therapy.

D. H., a white male, age twenty-one, entered the genito-urinary service of U. S. Marine Hospital, Norfolk, Va., September 13, 1939, complaining of pain in the left hip and recurrent urethral discharge. He had contracted gonorrheal urethritis one and a half years before admission and had had frequent recurrence of his urethral discharge. His joint pain had begun three months prior to admission. Physical examination was essentially negative with the exception of a mucoid urethral discharge. No objective signs of joint disease were present, although the patient complained of rather severe pain in the left hip. Numerous pus cells and many gram negative cocci, but no typical gonococci, were found in the urethral smear. No evidence of cardiac disease was

*From the Medical Service of the U. S. Marine Hospital, Norfolk, Va.



present. Blood pressure 120/68; pulse 80; temperature 36.9. Kahn and Eagle tests were negative on repeated examinations. X-ray of chest showed the heart and great vessels normal. Urinalysis showed specific gravity of 1.035 but otherwise negative. He denied any severe illnesses except pneumonia which he had as a child and claimed he had always been in excellent health prior to present illness. He smoked 12-15 cigarettes a day.

He had been treated several times previously with sulfanilamide and urethral irrigations. Because of the failure of cure and his present joint symptoms, it was decided to employ fever therapy.

On September 20, 1939, he was given six hours at 106° in the Kettering hypertherm with no apparent ill effect. On September 26th, he was given another six hours at 106.5° which he appeared to tolerate well. He was taken out of the hypertherm at 1:50 P. M. and returned to the ward and given the routine treatment.† At 3:00 A. M., September 27, he complained of substernal pain of a sharp stabbing character. He was seen by the interne shortly afterward and given morphine gr. ¼. The interne was not impressed by the severity of the patient's pain and because he did not appear ill and was considered somewhat neurotic, a complete physical examination was not done. Very little relief was obtained with the medication given and about 6:00 A. M. he began to vomit, still complaining of the substernal pain.

One thousand cc. of 5 per cent glucose was then given intravenously. Later morphine gr. ¼ was again given and this time complete relief of all pain was obtained. The vomiting promptly ceased and on September 28th, the patient was again in apparent perfect health with exception of the slight mucoid urethral discharge. No further chest symptoms were noted.

On October 4, 1939, it was decided to give the

†**Routine treatment of hyperthermy cases is as follows:**
Night before hyperthermy—an enema, one pint of milk and sodium amytal, gr. III.
In hyperthermy—fluids *ad lib.* 1,000 cc. 5 per cent glucose in saline q. 4 h.
After hyperthermy—supper on return to ward. Fluids *ab lib.*, intravenous if indicated.

patient another period of hyperthermy, but in view of the attack of substernal pain a medical check-up was requested. Physical examination at this time was essentially as before. The electrocardiogram, however, showed definite abnormality. There was evidence of right heart hyperactivity and inversion of all T waves. On October 18th, the electrocardiogram showed a sharply negative V shaped T_1 and sharply positive T_3 characteristic of an anterior infarction. A diagnosis of coronary thrombosis of the anterior descending branch was made. Films on October 31st and November 13th showed further changes. The patient was discharged on December 7, 1939, with no further symptomatology.

He returned February 5, 1940, at which time examination was essentially as before except that a soft systolic murmur was present over the tricuspid area. A sedimentation rate at this time showed a drop of only 2 mm. at the end of one hour. White blood count was 8,600; 59 per cent neutrophiles. X-ray of chest was normal. The electrocardiogram showed definite changes toward normal.

It cannot be definitely stated that the hypertherm was the cause of this thrombosis but certainly there is a remarkable coincidence.

It is difficult to hypothesize what might have happened to this patient had he been put in the hypertherm as scheduled on October 4th.

This case has impressed upon us another possible complication of fever therapy and has served to bring to our attention the fact that many young people may have coronary disease which we cannot detect by physical examination. A routine electrocardiographic study is made on every patient before hyperthermy in the hope that we may possibly detect latent coronary disease and thus take the necessary precautions.

SUMMARY AND CONCLUSIONS

1. A case of coronary thrombosis in a twenty-one-year-old white male following hyperthermy is presented.

2. Attention is drawn to the fact that many young adults have coronary disease undetectable in the usual physical examinations.

3. Fever therapy may precipitate an attack of coronary thrombosis.

4. Routine electrocardiograms should be a part of the routine examination of patients to be given fever therapy.

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RESPONSE OF MANIC-DEPRESSIVE PSYCHOSIS TO ALCOHOL—A CASE HISTORY.

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On July 9, 1940, I was called in to see Mrs. H. W. T., a white female, aged thirty-nine, weight 190, height five feet six inches, mother of two children aged eight and fourteen. Childhood history negative and family history negative. I have been her family physician for the last nine years. She has had no serious illness, but has passed urinary calculi on three occasions. Two years ago she had a simple hysterectomy for fibroid tumor. Ovaries and tubes were left intact. She has been in excellent health up to the time of her present illness.

I found Mrs. T. talking constantly and very rapidly, exhilarated and restless. She jumped about on the bed and on the floor. The subjects of her

speech were unrelated, but religious topics were prevalent. A diagnosis was made of manic-depressive psychosis.

The history of onset given me was as follows: Up until two months before, she had been emotionally calm, performed her household duties, and was considered entirely normal in all respects. About that time she began to attend a revival meeting, in which she took increasing interest. After two weeks attendance she was observed by neighbors and friends to be very nervous. This nervousness increased gradually as she became more active in the revival services. She tried to convert several neighbors and became extremely agitated at their apparent indifference. Her husband told me she had not slept in seven nights.

About 1:30 P. M. July 9th, I gave her six grains of sodium amytal and she became worse. Thereafter she refused all food and medication. With Dr. Ferlazzo, my associate, I saw her again July 10th and she was given sodium amytal, milk and several ounces of whiskey by nasal tube. She then slept about four hours, and, on awakening, she voluntarily took another dose of whiskey and again slept several hours. Whiskey was administered at varying intervals in doses of two to three ounces for several days. She was more cooperative after the first dose and on July 13th, she was well oriented and rational, but somewhat nervous. She was given small amounts of whiskey several times a day and resumed her household duties.

In late August while I was on my vacation, she attended church services for the first time since her illness, and immediately thereafter she refused all medication. She became stubborn, morose, antagonistic and actually violent toward her husband, children and friends. She heard voices and stated that she received messages from heaven by radio. She continued in this state. On my return September 17th, I again had to resort to the nasal tube for the administration of medication and food. Her former medication was resumed and on September 19th the patient again appeared to be in a normal state of mind, but somewhat nervous. She has continued so until the present time.

I am unable to predict the final outcome of this case, but feel reasonably certain that there has been a definite beneficial response to alcohol. In view of my results in this one case, and in deference to the reports of several psychiatrists, I believe that this type of treatment of manic-depressive psychosis will bear further investigation.

XEROPHTHALMIA AND KERATOMALACIA ASSOCIATED WITH OBSTRUCTIVE BILIARY CIRRHOSIS.*

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and
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Early signs of vitamin A deficiency, especially in infants, are not easily recognized clinically, and the diagnosis of such a condition is very difficult prior to the development of marked eye-symptoms. According to Bessey and Wolbach[1] the specific pathological changes due to vitamin A deficiency are found in many epithelial structures. There occurs atrophy of the epithelium concerned, reparative proliferation of the basal cells and differentiation of the new product into a stratified keratinizing epithelium.. The replacement epithelium, regardless of the previous functions and structure in the region, is identical in all locations, and comparable in all its layers with epidermis. In human infants keratinizing metaplasia has been found in the conjunctiva, cornea, mucosa of the nares, accessory sinuses, including the maxillary antrums, trachea, bronchi, pancreas, renal pelves, ureters, salivary glands, uterus and periurethral glands. The commonest and earliest appearance of the metaplasia is in the trachea and bronchi.[2] The early effect of the deficiency upon the respiratory mucosa is thought to be a satisfactory explanation of the frequency, severity, and persistence of the pneumonias that have been in most instances responsible for the deaths of infants suffering from vitamin A deficiency.[2]

Involvement of the eye occurs late. The earliest demonstrable change is metaplasia of the epithelium

*Read before the Richmond Academy of Medicine, May 14, 1940.

of the conjunctiva and cornea. Atrophy and metaplasia of the ducts of the lacrimal glands contribute to the consequences of the accumulation of keratinized cells in the conjunctival sac. The cornea becomes vascularized, edematous, and infiltrated with leucocytes. Necrosis of the cornea may occur beneath intact hyperkeratotic epithelium.[2] Ulceration may follow, and prolapse of the iris through the cornea may occur.

As general or secondary effects of vitamin A deficiency in infants as well as in laboratory animals Blackfan and Wolbach[2] list the following: (1) loss of weight; (2) anemia; (3) cessation of growth of bones; (4) degenerative changes in skeletal muscles; and (5) lymphoid hypoplasia.

In connection with the early detection of signs of suspected A avitaminosis the points for special consideration are[2] (1) analysis of the history regarding adequacy or inadequacy of vitamin A or its precursor carotene in the diet; (2) the consideration of vomiting and diarrhœa and of other morbid processes interfering with the metabolism of fats, especially such as chronic generalized infections, and diseases of the liver, gall-bladder, and pancreas; (3) the appearance of night blindness and xerosis of the cornea with white deposits in the scleral conjunctiva; (4) the demonstration of keratinized epithelial cells in the scrapings from the cornea, nose and other epithelial membranes where keratinized cells are not normally found.

Vitamin A deficiency may be due to inadequate intake of the vitamin or to some factor or factors interfering with its absorption and utilization. Milk, butter, eggs, green and yellow foods of plant origin and especially green leafy vegetables, cod liver oil, halibut liver oil and certain other fish liver oils are among the rich natural sources of vitamin A or its precursor, carotene,[3, 4, 5] and if included liberally in the diet of the normal child provide an adequate amount of this factor.

Although the intake of vitamin A may be adequate, evidence of deficiency may result from failure to absorb and assimilate it in sufficient amount. Assimilation and storage of the fat soluble vitamin A and its precursor carotene are closely related to the digestion of fats, and conditions interfering with the solubility, together with incomplete absorption of fat, curtail materially the amount of vitamin A available for storage and utilization.[2] Clausen[3] states that exclusion of bile from the alimentary tract interferes with absorption of carotene and possibly of vitamin A. Microscopic evidence of vitamin A deficiency has been found in infants dying of congenital atresia of the bile ducts.[6, 2]

Clausen and McCoord[7] in a study of the carotinoids and vitamin A of the blood found that infection causes a prompt and considerable fall in the concentration of carotene, xanthophyl and vitamin A in the blood. During the acute stage of catarrhal jaundice and in celiac disease low plasma values for carotene, xanthophyl and vitamin A were also found. This was thought probably to be due to poor absorption.

Similar observations on the poor absorption of vitamin A in the presence of acute catarrhal jaundice have been made by Breese and McCoord.[11] They found that bile salts given by mouth appeared to aid in the absorption of vitamin A by these patients.

The same investigators[12] in a study of ten cases of celiac disease found a marked inability of these patients to absorb vitamin A in a normal manner. The absorption was slow and the blood values abnormally low.

Blackfan and Wolbach[2] report the study at autopsy of eleven patients in whom there was histologic evidence of vitamin A deficiency. Six out of the eleven showed extensive pancreatic disease and one showed congenital atresia of the common bile duct. Though the connection was not proven, they thought it reasonable to assume that this pancreatic lesion, if extensive might be responsible for the failure to utilize fats, and hence vitamin A even in the presence of an adequate intake.

In studies by Andersen[8, 9] and by Blackfan and May[10] on cystic fibrosis of the pancreas necropsies showed this condition occurring in cases with clinical and histologic evidence of vitamin A deficiency, sufficiently often to suggest that the vitamin deficiency might be due to the pancreatic disease which prevented the normal absorption of fat and the fat soluble vitamin A from the intestinal tract.

Xerophthalmia and keratomalacia, late manifestations of gross deficiency of vitamin A, are rarely encountered in the U. S. and Canada[13] though not uncommon in the Far East. In the Philippine General Hospital during the ten-year period from 1927 to 1937 out of 22,374 total admissions there were forty-seven cases of keratomalacia.[14]

During the twelve-year period of 1920 to 1932 there were in the Harriet Lane Home, Johns Hopkins Hospital, Baltimore, two cases of xerophthalmia out of 52,884 admissions; in the Children's Memorial Hospital, Chicago, there were two cases out of 150,000 admissions; in the Children's Hospital, Boston, there were five cases out of 9,265 admissions![13]

The case here reported falls in the group receiving at least a minimal adequate amount of vitamin A but unable to utilize it.

Baby D. M. was a premature baby, born June 6, 1939, at approximately seven and one-half months' gestation. She weighed four pounds at birth. Her mother was said to have had "thyroid trouble" for five years preceding the birth of this child. One other child had been born prematurely and died when sixteen days old. The father was living and well. The baby, though small, was said to have been in good health until it began to have trouble with its eyes when three and one-half months old. At this time the mother noticed a "white film" in both of its eyes. It had been fed on a formula of evaporated milk all its life, but had received no cod-liver oil or other vitamin preparation prior to that time. The parents were from an illiterate rural laboring class, and the baby had received no medical attention since birth until the time that something was observed to be wrong with its eyes. It was then taken to the family physician who referred it for an ophthalmological examination. At this time the baby was approximately four months old. Examination† revealed an advanced stage of xerophthalmia and keratomalacia. The recorded description of the condition at that time was as follows: "Both eyes showed a lustreless, nodular and wrinkled appearance with the cul-de-sacs more or less filled with a yellowish, frothy exudate. Both corneas were very soft, having the general appearance of melting ice upon a pond. This appearance of the cornea is spoken of as necrotic, not in the sense that it is due to secondary infection but simply a generalized softening of the corneal tissue. There was an entire absence of any vascular reaction in either the conjunctiva or the corneas."

The baby was put on cod-liver oil and hospitalization for pediatric study and treatment was advised. The parents delayed following this advice and it was two weeks later before the baby was admitted to Johnston-Willis Hospital on October 25, 1939, for further care.

Physical examination then revealed a small undernourished white female infant, moderately dehydrated, lying quietly, without any apparent discomfort. The weight was six pounds, twelve ounces. The skin was slightly jaundiced. The fontanelle was one and one-half inches in diameter and slightly tense. Throat was moderately congested, and the baby had a slight cough. Heart and lungs were normal. Abdomen was slightly prominent and the liver was considerably enlarged, the lower border being palpable at the level of the umbilicus. Spleen was not palable. Eyes showed a moderate amount of whitish foamy discharge. There was marked opacity of both corneas with ulceration and sloughing. The conjunctiva had lost its lustre and presented small whitish spots, giving it a cloudy appearance. The lids were not swollen. A corroborative diagnosis of xerophthalmia and keratomalacia was made.

Urinalysis showed a trace of bile and a slight amount of albumin.

Blood examination showed R.B.C. 3,300,000; W. B.C. 22,400 with 50 per cent P.M.N., 47 per cent lymph., and 3 mononuclears.

Subsequent urinalyses and blood counts were essentially the same.

On account of the tense fontanelle a spinal tap was done with normal findings, including a negative spinal fluid Wassermann. Kahn tests on the blood of both mother and baby were negative.

COURSE IN HOSPITAL

The baby was given a formula of evaporated milk; eight drops of percomorph oil three times a day; and offered three ounces of orange juice daily. The feedings were taken very poorly, and some of these were regurgitated or vomited. Lactic acid was then added to the formula; and later skimmed milk substituted for evaporated milk. After a few days Smaco carotene in oil, ten drops daily, was added, daily inunctions with cod-liver oil were given, and percomorph oil was used locally in the eyes. Other changes in feedings included periods on "Olac", and on a "skimmed milk-pabulum-dextrimaltose-gelatin" mixture. A liquid vitamin B complex, and cevitamic acid were also included in the dietary.

The stools presented a grayish acholic appearance.

†By Dr. R. H. Courtney.

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A red cell fragility test showed initial hemolysis at thirty-eight, suggesting an obstructive type of jaundice. Indicative of the same type of jaundice were a delayed direct van den Bergh test and a positive indirect van den Bergh.

A duodenal tube was passed, using the fluoroscope to determine that it was in proper position. Two c.c. of 50 per cent magnesium sulphate were given through the tube and the duodenal contents aspirated at five to ten-minute intervals. Of the three specimens removed one showed a questionable faint trace of bile; the others showed none. From these findings a congenital obstruction of the bile ducts was suspected. Pancreatic extract and bile salts were then given after each feeding, following which the stools took on a normal yellow appearance.

After a few days in the hospital both corneas ruptured and a portion of the iris protruded through the perforations. Subsequent to the institution of therapy the discharge from the eyes diminished; there was definite evidence of healing of the corneas by fibrosis and the conjunctiva took on a dry shriveled appearance. However, the baby failed to gain weight and gradually lost ground.

The temperature was normal on admission but during the next two weeks there were occasional slight fluctuations under 101. These febrile periods were attributed to the slight upper respiratory tract infection that was present on admission and which persisted throughout the stay in the hospital. A slight cough was also present most of the time.

During the third week after admission a few fine moist rales were first detected over the base of the right lung. These persisted during the next two weeks and again there were intermittent short febrile periods; but the highest temperature was only 101.4. During this time the baby became gradually weaker and died on November 25th.

In the absence of the pathologist, Dr. R. D. Bates, the autopsy was performed by a member of the surgical staff and a pathological report on the organs removed was made later by Dr. Bates.

At autopsy, the baby weighed six pounds, three ounces. The eyes showed definite fibrosis of the cornea with shrunken globes, but they were not removed for section; the gall-bladder was small and shrunken; the cystic duct and common bile ducts were quite small but patent. Grossly the pancreas appeared normal, but unfortunately it was not removed for microscopic examination. The description by Dr. Bates of the organs removed was as follows:

Gross Description: (Organs received in laboratory).

The lungs are smooth and spongy in consistency. There is moderate amount of congestion of the lower lobe of each lung. No emboli could be demonstrated in pulmonary arteries.

The liver is swollen. It is deeply bile stained, being dark green in color and showing diffuse speckling. The gall-bladder is small and partially collapsed. It contains a small amount of thick bile.

The spleen and kidneys present dull "parboiled" appearance usually associated with cloudy swelling. No evidence of inflammation. The spleen is slightly enlarged for a child of this age.

Anatomical Diagnosis:

1. Icterus, with congestion of liver.
2. Cloudy swelling of kidneys.
3. Bilateral broncho-pneumonia—lower lobes—terminal.

Microscopic:

Lungs: Sections show scattered areas of consolidation centering around bronchioles. There is peribronchial leucocytic accumulation, many of which are polymorphonuclears and the lumen of the involved bronchioles filled with fibrino-purulent exudate.

Spleen: The sinuses are distended with blood. There are numerous hemorrhages and the Malpighian corpuscles are obliterated. The capillaries are distended throughout.

Liver: There is mild capillary hyperplasia and moderate proliferation of fibroblasts. The liver cells are transparent and contain bile pigment typical of starvation process. Some areas show destruction of liver cells and replacement fibrosis.

Kidneys: The tufts in many of the glomeruli are hazy and blunted. The cells lining the tubules are faintly stained and contain granules; occasional albumen casts are seen. There is moderate lymphocytic accumulation in the interstitial tissue.

Final Diagnosis: (From study of organs removed).

1. Obstructive biliary cirrhosis.
2. Cloudy swelling of kidneys.

3. Chronic passive congestion of spleen.
4. Broncho-pneumonia—bilateral—lower lobes (terminal).

SUMMARY AND CONCLUSIONS

In the case reported keratomalacia and xerophthalmia developed in an infant receiving an adequate amount of vitamin A in its diet but unable to utilize it. Autopsy showed an obstructive biliary cirrhosis.

The cause of the biliary cirrhosis is not known but it is believed that the absence or deficiency of bile in the intestinal tract interfered with the normal digestion of fats and prevented the absorption of vitamin A to such a degree as to bring about the keratomalacia and xerophthalmia characteristic of a gross deficiency of this vitamin.

The fact that the microscopic study of sections from the lungs did not show the epithelial metaplasia usually associated with vitamin A deficiency may have been due to the treatment given during the month in the hospital.

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A NON-OPERATION TREATMENT OF CARBUNCLES.

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Dr Costas' definition of carbuncle is: "A circumscribed inflammation of the deeper layers of the true skin and of the subcutaneous tissue with fibrinous exudation, multiple foci arising, and the tissue adjacent to each necrotic plug becoming gangrenous".

Romanis and Mitchner say it is a result of infection of the subcutaneous fat by a pyogenic organism. I will add, probably by a variety of organisms, aerobic, anaerobic; some heat resisting; others killed by heat; still others killed by light.

Rose and Carliss regard some trauma has caused a local extravasation of blood or other local diminution of vitality.

There seems to be a consensus of opinion that various staphylococci have various degrees as well as variety of exotoxins.

Campani and Grossi demonstrated that lack of general resistance is a causative factor. Workers in tin never have boils or other superficial pyogenic infection. But that does not prove that all pyogenic infections are cured by salts of tin. If it did, none of us would have them, because all of us eat canned food to more or less extent and must, necessarily, get more or less of the salts of tin.

Piersol says that a carbuncle is an exaggerated form of boil and owes its clinical distinction and pathological features to the nature of the tissue—the skin of the back of the neck, the back, the hairy back of the hand and fingers, and the upper lip—in which it originates. In these regions the skin is very thick, tough, and forms the bases of hair follicles; clefts of true skin filled with fat, the columnae adiposae of Warren, extend downward for variable distance to reach and become firmly bound to the underlying fascia. Because of the anatomical arrangement arising in an infected follicle, the infective process, failing to reach the surface, burrows downward around the column to reach the surface of the fascia. It now travels along the fascia, and, reaching an adjacent column, burrows upward toward the surface. This continual travel along the fascial surface and upward extension along the columnae adiposae

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accounts for the multiple openings so characteristic of carbuncles. The prognosis in staphylococcic infection varies, depending upon area of infiltration and the amount of systemic poisoning. The location of the lesion is an important factor. The high mortality associated with carbuncles of the face is generally known. Bullock in 1912 showed from statistics that 22 per cent died in facial carbuncles. The upper lip appears to be the most apt to end in death.

COMPLICATIONS

Kauffman claims that the original extent of the lesion, carbuncle, or multiple boils, in 75 per cent of the cases, rather than the virulence of the organisms, seems to influence metastasis. In young people, secondary infection is most apt to strike in the bones, while in adults the transfer is usually to the soft parts. The kidney is most frequently the involved soft part. Metastasis is very rare by the lymph stream. Thompson collected thirty-three cases of carbuncles of the kidney and found that with very few exceptions the patient was healthy, save for the staphylococcic infection of the skin. Abbit says a carbuncle of the neck was usually the primary focus, the symptoms suggesting secondary kidney involvement and continuous malaise and intermittent fever arising from two to eight weeks after the primary infection. A positive diagnosis can only be made by an operation. Fever with chills, associated with pain and swelling in the loin within a few weeks from the initial infection, would make one suspicious.

TREATMENT

Quoting from Piersol's Cyclopedia of Medicine:

"The therapeutics of staphylococcus infection is legion. The multiplicity of data concerning the treatment of these infections indicates that no specific standard of therapy has yet been evolved. While, as Christopher indicates, classification is impossible, treatment can best be considered under the following outline modified from the one he presents.

I. Prophylactic treatment.
II. Local treatment:
  (A) Mechanical:
    1. Incision by knife, including excision.
    2. Incision by cautery, including radio knife.
    3. Ignipuncture (white-hot needle).
    4. Incision by chemicals.
    5. Rest.
  (B) Chemical:
    1. Cataplasm and softening poultices:
      (a) Unguents.
      (b) Flaxseed.
    2. Hypertonic solutions:
      (a) Saturated boric acid.
      (b) Aluminum acetate.
      (c) Hypertonic sodium chloride.
    3. Antiseptic applications:
      (a) Phenol.
      (b) Iodine.
      (c) Ichthyol.
  (C) Heat:
    1. Hot fomentations.
    2. Dry heat.
    3. Diathermy.
  (D) Irradiation:
    1. X-ray.
    2. Irradiated substances.
  (E) Biological:
    1. Autoblood circuminjections.
    2. Horse serum.
    3. Pier's hyperemia.
    4. Bacteriophages.
    5. Bacterial filtrates.
III. Systemic treatment:
  (A) Biological:
    1. Vaccines.
    2. Insulin.
    3. Non-specific protein therapy.
  (B) Pharmaceutical:
    1. Sulphur.
    2. Tin.
  (C) Dietetic measures, laxatives, fluids, rest.
IV. Anesthesia.
V. Prophylaxis: The primary factor in the prophylactic treatment of furuncles and carbuncles is strict bodily cleanliness. This includes general cleanliness, avoidance of scarifying the surface and protecting such areas prior to their infection. Likewise, it means keeping areas adjacent to any local pustular lesion clean, in order to avoid secondary transfer of the infection."

For the past twenty-five years I have not considered the knife in the management of carbuncles, except when it burrows beneath the fascia.

In treating carbuncles, the first thing to do is to examine the patient—the urine for sugar, for albumin, casts or whatever; the blood for anaemia, for

white cells, etc.; the heart, lungs, glands, teeth, tonsils, and anything which would lower the resistance, not forgetting to look into the psychology of the patient. Some worry is frequently at the bottom of the whole thing, and can be helped a great deal by sympathetic explanation and encouragement.

The only excuse for this paper is that I have had 100 per cent recoveries, without any help from the knife, over a period of twenty-five years. I express it that way because I punctured one—without benefit from the puncture.

My routine treatment is, locally, hot wet solutions of magnesium sulphate (half saturated solution) kept up all waking hours. Around just outside of open wound each day, ichthyol 25 per cent in some base; once or twice daily twenty-minute applications of light and heat by means of a one hundred and fifty-watt bulb as close as can be endured. During the application of heat and light there is a continuous outpouring of serum or pus which I keep wiped off with "S. T. 37". Internally, the patients nearly always need some form of iron. I always give it. Also, they need lime in some form. I usually give a quarter grain of calcium sulphide every two hours, which seems to increase the facility for drainage, which is the most important part of the treatment. If the patient's appetite is low, I give three grains of pancreatin with calcium lactate, or diphosphate or gluconate. Rest, mentally and physically, is essential. One case with a large carbuncle on the back of the neck could rest best leaning forward on pillow and folded arms.

In diabetes I give the same treatment, except I increase insulin to keep the blood sugar within limits and keep the patient on a strict buttermilk diet with one glass of orange juice in twenty-four hours.

Since writing this in 1938, I have had a very limited experience with the use of staphylococcus toxoid, which was not sufficient to come to any conclusion. The results were not encouraging.

Apparently I have had better results from the use of sulfathiazole.

OSSIFYING FIBROMA—THENAR SPACE.

BERNARD H. KYLE, M.D.,
Lynchburg, Virginia.

A negro male, age thirty-two, occupation—laborer, presented himself on August 1, 1940, complaining of an enlargement in the palmar surface of the left

hand, which he stated had been present and increasing in size for a period of three years.

Examination showed a large, firm, movable mass under the thenar muscles of the left hand with marked tenderness on pressure. There was no disturbance of motion or sensation in the fingers. Pain was not present except when pressure was made over the tumor. From the location and appearance of this tumor, it was thought that it might be a xanthoma.

Patient was admitted to the hospital and under general anesthesia incision was made, paralleling the thenar crease, locating the large branch of the median nerve, which courses along the border of the flexor pollicis brevis. A blunt dissection was made between the flexor pollicis brevis and the abductor pollicis brevis, separating these muscles, locating the tumor in the thenar space under the abductor pollicis brevis. The tumor, about the size of a hickory nut, readily came into view. It was encapsulated, having a capsule about a quarter-of-an-inch thick, in the center of which was dense bone formation.

Pathological report was an ossifying fibroma.

Following the operation, the function of the hand is good; however, there is a slight disturbance in sensation to the palmar side of the tip of the thumb.

XUM

The Council
Medical Society of Virginia

The Council of the Medical Society of Virginia met at the Society's office on Tuesday, January 21, 1941, at 11:00 a. m., with the President, Dr. Walter B. Martin, presiding. Others present were: Drs. Julian L. Rawls, James L. Hamner, W. L. Powell, A. F. Robertson, Jr., and A. D. Hart, councilors; Drs. J. M. Emmett, J. E. Knight, and H. B. Mulholland, vice-presidents; Dr. Wyndham B. Blanton, editor; Dr. I. C. Riggin, State Health Commissioner; Dr. Dean B. Cole, chairman of the Legislative Committee; Dr. Hugh H. Trout, State Representative on the National Medical Preparedness Committee; and the secretary.

A quorum being present, Dr. Martin asked the pleasure of the Council with regard to the minutes of the October 1940 meeting of this body, as published in the November MONTHLY. It was thought unnecessary to read these and they were accepted as printed.

Dr. Martin said that in accordance with action taken at the last meeting, the committee composed of Drs. Bowyer, Blackwell and himself had bought a silver tray and bowl for Dr. Blanton, in appreciation of his services as editor, and a note of appreciation from Dr. Blanton was read.

Committee reports were next called for and, Dr. Blanton, chairman of the Program Committee, not having arrived, the secretary stated that the exact dates of the next annual meeting had been left to the Program Committee, and they had selected October 6, 7, and 8, the idea being to have the House of Delegates and Council meet on Monday, the 6th, with the first scientific session to open on Tuesday at 9:30 a. m. Upon motion, these dates were approved. The Committee also recommended that the technical exhibits be handled through the State Society office, with local assistance as to details, that the income from the exhibits might be used for general expenses of the meeting. It was decided by the Council that the money received should belong to the State Society but that a committee of doctors from both Norfolk and Princess Anne County Societies be appointed to cooperate with the secretary in arranging these exhibits. Attention was called to the fact that the House of Delegates had adopted a resolution in 1923 that "in future, all money received from commercial exhibits be given to the local society entertaining the State organization", so motion was made that the decision of the Council be effective for this meeting but recommendation be made to the House of Delegates at its next session that the Society return to the former plan of having money from exhibits paid them for necessary expenditures, instead of going to local societies as for the past seventeen years, as members now pay individually for entertainment. Adopted.

At the last meeting of the Council, a letter was referred to the Program Committee, in which a suggestion was made that there be some official relation between the State Medical and Dental Associations. The Committee discussed this and felt that the program as arranged for the coming meeting would be so crowded that they did not see their way clear to include papers on dental subjects. The President felt there was nothing to do but to accept their recommendation at this time but thought this should be referred back to the Program Committee with the request that they make recommendations for future consideration. This was put as a motion and adopted.

Dr. Cole, upon request, then gave a report on the activities of the Legislative Committee, stating that they felt a good deal had been accomplished. He presented a bill which had been approved by himself, the President, and Dr. Hundley, chairman of the Medical Economics Committee, to be paid from the special fund from increased dues, and it was moved and adopted that this be paid.

Dr. Knight told of a case in their community which had come to trial and said the cost would be $250.00. He asked if they would have financial aid from this fund, to which Dr. Cole replied that he felt the Committee would agree to pay half the amount. Dr. Robertson asked if the Fauquier Society had applied to the State Board of Medical Examiners for help and said they have a fund to assist in cases they felt should be prosecuted and, if not used, it reverted to the State treasury. Dr. Martin said it was his opinion that the local community should always pay part of the expense as they are ones most helped. He also felt that, if the Legislative Committee could secure an injunction in the cases now under consideration, it would mean a good deal. Dr. Cole recommended that one-half of the cost of the Fauquier case be assumed by the Special Fund if it did not amount to more than $125.00, and this was voted on and adopted.

Dr. Cole said his committee had an appeal from another section of the State and they had offered to pay half the expenses in this case but had heard nothing further. He had discussed with the attorneys the best means of procedure and they, as well as Mr. Holloway of the Bureau of Legal Medicine of the American Medical Association, felt an injunction should be secured in all cases coming to trial, if and when deemed advisable. He asked the opinion of the Council about this and it was moved, seconded and adopted that this be done.

Dr. McGee, chairman of the Committee on Scientific Exhibits, had sent a report asking that the Council consider the advisability of purchasing an X-ray frame

work for use in scientific exhibits, this cost to be in addition to the amount allowed his committee in the budget. Motion was adopted to ask the committee for more information on this subject before a recommendation could be made.

Another suggestion from Dr. McGee was that there should be a standing committee on Technical Exhibits. It was felt it would be necessary to have a local committee to assist in details, so it was moved and adopted that the plan suggested earlier in this meeting be adhered to.

Dr. F. J. Wampler, chairman of the Committee on Industrial Health, presented the following report:

The Committee on Industrial Health met in Richmond on December 5. All members of the Committee were present except Dr. Hawkins, of Waynesboro. Dr. Martin, president of the Society, met with us. The Committee organized by electing Dr. J. B. Porterfield, of the State Health Department, as secretary of the Committee.

It was decided that the most important thing the Committee could do this year would be to try to get each of the component societies to have either a complete program during the year on industrial health or have at least one speaker on the subject at one of the meetings during the year. It was decided that we would work along this line.

It was also decided to act with other groups as cosponsor of the symposium on industrial health to be held at the Medical College of Virginia on September 11 and 12, 1941.

The chairman and the secretary of the Committee attended the meeting of the Third Congress on Industrial Health sponsored by the Council on Industrial Health of the American Medical Association in Chicago on January 13, 14 and 15. The Congress had an excellent program and the attendance must have been at least twice as large as the attendance at the Second Congress, which was held last year.

Respectfully submitted,

FRED J. WAMPLER, M.D.,
Chairman.

This was ordered received and filed.

Dr. Lehman, chairman of the Cancer Committee, reported the certification of the Elizabeth Buxton Hospital Tumor Clinic, Newport News, for the treatment of indigent cancer cases, since their report to the House of Delegates. This approval was made under the regulations adopted by the House of Delegates in the supplemental report of the Committee last summer. This report was received and filed.

Several other committee chairmen advised that there were no special activities to report at this time.

Announcement was made of the consolidation of the Southside Virginia Medical Association with the Fourth District Medical Society, retaining the officers and bylaws of the last named, the society to be known as the Fourth District and Southside Virginia Medical Society. Request was made for a new charter to replace that now in the name of the Fourth District Medical Society. This was granted.

Upon request, Dr. Riggin told of a meeting with the Governor, at which time plans were made for organizations throughout the State to assist in caring for patients with influenza should there be an epidemic. Committees had been appointed in a number of counties but he did not think their services would be needed at this time. They would be available in case of another wave of the disease.

He also told of the set up for medical service and use of hospitals in the State Defense program, in emergencies arising from accidents incident to explosions, fires, etc., which would call for more help than could be given locally.

Dr. Martin said he had contacted the councilors, asking them to find out which doctors would be able and willing to go anywhere in the State for such service, and also what hospital facilities might be available, but had not received many answers yet.

Dr. Rawls asked how much this set up would overlap work of the Red Cross, to which Dr. Riggin replied he did not think the work would conflict. He said the State Society would not be expected to get hospital facilities, but only the names of physicians available, and the type of work for which they would be willing to be called.

Dr. Martin asked if the Council approved what had been done with regard to securing this information and the members moved approval of his action.

Dr. Emmett asked how many doctors would be needed and Dr. Martin thought it might be well to have a list of about one hundred from which to make selections.

Dr. Blanton felt the plan should go even further and have some one designated to be in charge of each situation. Dr. Martin said the files would be in Dr. Riggin's office and he would be in charge.

Dr. Robertson thought, Dr. Riggin could designate a man to take charge of the situation, according to the community needing assistance, if he has the list of doctors, and offered this as a motion which was adopted. Dr. Hart said he also felt that a local man who knew the hospital situation would be more suitable in each case.

Dr. Martin said this brought up the idea of having a "contact" man in each county, on a more or less permanent basis. Several councilors thought this suggestion good, and, after discussion, motion was made that appointment of these men be made by the Presidents of local societies but by the councilors for counties where there is no local society. Dr. Martin thought these contact men would be helpful also when Legislature is in session and thought the Council might endorse the plan in principle but that it would have to be worked out later. The motion was then seconded and adopted.

Dr. Cole said they had already started the plan of having contact men in their legislative work and Dr. Martin thought it might be well to send a complete list of those they had selected to the Society's office and said he would be glad to get out a form letter to be used by the councilors in securing these men.

Dr. Martin presented the following letter from Dr.

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E. W. Lacy, Jr., State Health Consultant to the National Youth Administration for Virginia:

DECEMBER 28, 1940.

DEAR DR. MARTIN:

Recently the President designated the National Youth Administration as an emergency defense organization, and as a part of this program a state-wide health project has been authorized by the Administration.

Here in Virginia we are planning to have all youth working on out-of-school projects examined by competent licensed physicians, and whatever remedial measures necessary carried out. In certain cases the services of specialists will, of course, be needed, especially in cases of ear, nose and throat defects, repair of hernia, etc. We intend that the preliminary examination be thorough and the examining physician will be expected to classify each youth into certain groups, according to their physical fitness.

Here in Virginia we have secured the co-sponsorship of the State Board of Health and the State Board of Education. It is also our desire to secure the endorsement of our program by every local Medical Society, as well as the State Society.

Our program has the full endorsement of the Defense Committee of the American Medical Association, and we feel that for its proper conclusion we need the cooperation of our own State Medical Society, since it will be impossible to go before each and every county and local medical group. We would appreciate your giving this matter prompt consideration, bringing it before your Executive Board, and presenting it to the physicans of Virginia through the VIRGINIA MEDICAL MONTHLY.

Please let me know your reacton toward this program, and a prompt action and reply will be greatly appreciated.

Very sincerely yours,

E. W. LACY, JR., M.D.,
State Health Consultant,
National Youth Administration for Virginia.

Dr. Riggin was asked what he knew of this project and explained that the NYA has a set up in Virginia which is accomplishing some good work but many physical defects are found in the youth. They had asked him to have some physicians designated to help them in making examinations, etc., but there was no fund available for this purpose. He thought the suggestion a good one if funds could be made available.

Dr. Emmett moved that Dr. Lacy be advised that the Council approved his request in principle, if they could formulate an adequate program, and, when they submit a plan which will make it possible to carry out the work, the Councill will be glad to consider endorsement of the program. This was seconded and carried.

Dr. Martin said he had sent letters to the councilors with regard to fees recommended for laboratory work done on draftees on the requisition of the examining physicians and stated he had had the approval of most of the councilors who had conferred with laboratories in their communities and asked if they wished to take further action on this. It was moved and carried that the fees as recommended be approved.

In answer to an inquiry from Dr. Rawls, it was thought there would be State funds available for these fees.

Dr. Trout, being asked to give the Council information with regard to Medical Preparedness, stated that the American Medical Association had sent a second list of names showing a large number who had not filled out and returned the questionnaires and asked the councilors when they receive the new lists from the Secretary to supply such information as they can on the questionnaires where they get no answers, and turn them in. He also said he felt that Dr. Trice had worked very hard and earnestly in the set up of Selective Service Boards, but felt it might be well to ask doctors on these boards to take a little more time in their examinations of draftees, and to make more use of their Advisory and Consultant Boards, with special reference to mental and other defects, so they would not have to be rejected later by Induction Boards. Family history from a doctor familiar with the man and his family would be a great help. By eliminating mental defectives at this time, the Government would be saved a large expenditure of money later. Motion was adopted that Dr. Martin secure names of the doctors on the Selective Service Boards and write them letters along this line.

The Secretary said that the question had been raised by a couple of out-of-State members as to the increase of dues for those living out of Virginia, but the Council felt no exception should be made as the dues had been placed at $7.00 through amendment to the By-Laws by the House of Delegates.

In the case of members called to service by the draft, it was felt their dues should be remitted when they request it, after they close office and are actually in the Service, and the Secretary was instructed to so notify those members who had tendered resignations because of this.

Dr. Riggin was asked if he could give information as to fees paid physicians for services to patients in the jails, and he said he would try to find out something of the set-up in the near future. Dr. Martin said he understood there were gross defects in the present system, and, if the Council wished, he would appoint a special committee to work with the State Health Commissioner in compiling information along this line, with instructions that they make recommendations to be referred to the Legislative Committee to be brought later to the attention of proper authorities. This was put in form of a motion and adopted.

Dr. Knight said some of their members felt their county society should be re-organized and asked if this might be done by surrendering the old charter and securing a new one. It was moved that this be referred to the Judicial Committee.

Adjournment followed.

AGNES V. EDWARDS,
Secretary.

Approved:
WALTER B. MARTIN,
President.

Mental Hygiene Activities

For several years Dr. Garnett of V.P.I. has been studying the marginal families of Virginia; marginal families and those whose income is not more than five hundred dollars ($500.00) a year. The women of this group have an average offspring of eight. practically none of the individuals pays taxes of any description, yet the State and Nation pay for the keep of the majority in jails, in State Hospitals or on relief. This great group has existed in the State for generations with very little done to better their conditions. Is it a cause for wonder that when they come up for induction into our modern army they will be found physically and mentally unfit?

The army must not be considered in the light of a sanatorium or a corrective institution. The modern army is for a very select group, composed of men who are stable and strong. They must be able to stand the strain of training and also we must be sure that eight years from now they will still be stable and strong. It is no disgrace to be turned down by an Examining Board, as many men are better suited for other pursuits where they can serve to a much greater degree—since in total war each person serves. On the other hand, it should be a great honor to be selected as worthy to be among the picked men who will be the first line of defense.

Mental Hygiene forces should seize this opportunity to rehabilitate those whose instability is brought to light by this inspection of the youth of the State. Such a rehabilitation will be a community problem which can be solved through community education. The medical profession of the State are the best fitted to lead in this campaign. The Mental Hygiene Society of Virginia has arranged four programs during the spring in order to stimulate the medical profession along these lines. On March 11 there will be an afternoon and night meeting in Danville. In the afternoon Dr. Joseph Barrett of Southwestern State Hospital will speak on Adolescent Problems; Dr. James Pettis of Western State Hospital on Pre-Adolescent Behavior Disorders. At night before the Danville Medical Society Dr. Pettis will talk on The Treatment of Mental Disease in a State Hospital and Dr. David Wilson on the Early Diagnosis of Mental Diseases.

In April the Mental Hygiene Section of the Virginia Conference of Social Work at the meeting in Roanoke will be combined with the Medical Section of that Conference. On Friday, April 25, the morning program will be on The Responsibilities of the Community to the Problems of Adolescence in Virginia. In the afternoon there will be discussion of the Effect of National Emergency on Adolescence. It is hoped to have two guest speakers of prominence at this time. On Saturday morning the results of the Venereal Disease Control Program will be presented by well known authorities in that field.

On the night of May 8, during the meeting of the American Psychiatric Association in Richmond, there will be a joint session of the American Psychiatric Association and the Mental Hygiene Society of Virginia. Dr. Abraham Myerson of Boston will speak on "The Influence of Personality Factors on the Selective Service and Defense Program from the Psychiatrist's Point of View". Colonel Rowntree, better known to the medical profession as Dr. Rowntree of the Mayo Clinic but now in charge of the Medical Section of the Selective Service System, will discuss the "Attitude of the Selective Service Toward the Mentally Unfit".

At the Institute of Public Affairs at the University of Virginia during June and July one afternoon and evening will be given to Mental Hygiene topics. In the afternoon the topic, "National Regimentation and Its Effect on Personality", will be the subject of one panel discussion, while the other panel discussion will be based about "Personality Problems Incident to National Mobilization". The evening meeting will consist of two addresses: "Personality Patterns and Placement in National Defense" and "The Immediate Problems of National Morale".

It is hoped that the members of the Medical Society of Virginia will make a special effort to attend these meetings.

DAVID C. WILSON, M.D.

Public Health Statistics

I. C. RIGGIN, M.D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for January, 1941, compared with the same month in 1940, follows:

	January 1941	*January 1940*
Typhoid and Paratyphoid Fever	9	11
Diarrhea and Dysentery	53	46

Measles	842	107
Scarlet Fever	194	219
Diphtheria	41	72
Poliomyelitis	3	2
Meningitis	6	4
Undulant Fever	2	1
Rocky Mountain Spotted Fever	0	2
Tularaemia	8	18

SHELLFISH CONTROL

Effective sanitary safeguards, intended to provide some guarantee of safe and wholesome shell sea foods, have received increasing attention during recent years. Interest of consumers and consumer representative agencies have furnished the incentive for an increasingly high standard of physical quality in most of the marketing areas. Possibly of even greater importance, doctors and public health officials in general have through their activity brought into being a means of cooperative local, state and federal sanitary control over the production and marketing of these products.

Shellfish sanitation as a public health measure is operative through a relatively unique system of cooperative supervision by production, marketing, and coordinating regulatory agencies. Health authorities in the various producing states determine the sources of oysters and clams and ascertain the freedom of these sources from either constant or intermittent pollution; they formulate sanitary requirements with regard to handling, shucking, packing, and shipment of shellfish products, and through bacteriological control and sanitary inspection maintain supervision over all phases of production methods. When satisfied by means of this supervision that sources and production methods are satisfactory, approval of them is granted through certification of the individual dealers. In order to coordinate this approval and certification by state authorities they are in turn given the endorsement of the coordinating agency, the U. S. Public Health Service. The Service also disseminates information regarding certification by furnishing semi-monthly lists which carry the names of all approved shellfish dealers to local marketing control agencies throughout the U. S. and Canada. It then remains only necessary that city, county, and other local control agencies exclude products not bearing this state and federal approval and that they enforce necessary measures to prevent insanitary display, handling, and dispensing by retail stores.

In Virginia some 1,800 inspections and 2,000 bacteriological examinations are made each year of shellfish producing areas and packing plants to obtain information and supervise activities incident to production of shellfish. Based on these inspections and examinations, an average of about 400 dealers have been certified by the Virginia State Department of Health during each of the past five years.

State and federal officials are restricted in their efforts to assure the sanitary quality of shellfish as marketed unless local officials make full use of existing production supervision through recognition of certification and appropriate marketing restrictions. Physicians and public health officials can do much to initiate and support such a program where it does not now exist or where it is not fully effective. An appropriate inquiry of city or town officials, or advice to patients, as well as organized efforts to secure adequate local control of shell sea foods, may not only result in elimination of a potential health hazard, but will also assure a safe and wholesome diet adequate in iodine and manganese and other important food minerals.

Miscellaneous

Program of Southeastern Surgical Congress.

RICHMOND, VIRGINIA
MARCH 10, 11, 12, 1941
HOTEL JOHN MARSHALL

Monday, March 10, 9:00 A. M.

1. Robert L. Sanders, M.D., Memphis, Tenn.—Multiple Carcinomata of the Stomach: Case Report. Illustrated.
2. Frederick H. Falls, M.D., Chicago, Ill.—Ectopic Pregnancy. Illustrated.
3. R. Arnold Griswold, M.D., Louisville, Ky.—The Treatment of Recent Compound Wounds. Illustrated.
4. Bradley L. Coley, M.D., New York City—Conservative Surgery in the Treatment of Bone Tumors. Illustrated.
5. Hu C. Myers, M.D., Philippi, W. Va.—Duodenal Drainage in the Diagnosis of Gall Bladder Disease. Illustrated.
6. Gershom J. Thompson, Rochester, Minn.—Carcinoma of the Prostate: Its Conservative Surgical Treatment. Illustrated.

2:30 P. M.

7. Fred Rankin, M.D., Lexington, Ky.—Surgical Treatment of Adenomatosis of the Colon. Illustrated.
8. Fred M. Douglass, M.D., Toledo, Ohio—Surgery of the Biliary Tract. Illustrated.

9. Walter B. Martin, M.D., Norfolk, Va.—The Interdependence of Medicine and Surgery.
10. Willis C. Campbell, M.D., Memphis, Tenn.—Treatment of Compound Fractures. Illustrated.
11. Alfred B. Longacre, M.D., New Orleans, La.—Immunity in Staphylococcus Infections. Illustrated.
12. William L. Estes, Jr., M.D., Bethlehem, Pa.—Non-Penetrating Trauma of the Abdomen. Illustrated.

8:00 P. M.

The C. Jeff Miller Memorial Lectureship

13. Memorial to Doctors Miller and Long—T. C. Davison, M.D., Atlanta, Ga.
14. Presidential Address—Irvin Abell, M.D., Louisville, Ky.
15. The C. Jeff Miller Lecture.
Frank H. Lahey, M.D., Boston, Mass.—The Surgical Treatment of Gastric, Duodenal and Jejunal Lesions. Illustrated.
16. V. P. Sydenstricker, M.D., Augusta, Ga.—The Importance of Vitamin Treatment in Preparation and Post-Operative Care of Patients. Illustrated.
17. Brien T. King. M.D., Seattle, Wash.—A New and Function Restoring Operation for Bilateral Abductor Cord Paralysis. Illustrated.

Tuesday, March 11, 9:00 A. M.

18. E. S. Gurdjian, M.D., Detroit, Mich.—Pathology and Surgical Management of Acute Head Injury. Illustrated.
19. Everard A. Wilcox, M.D., and Robert Greenblatt, M.D., Augusta, Ga.—The Hormonal Therapy of Small Fibro-Myomata of the Uterus. Illustrated.
20. Frank Philip Coleman, M.D., and Gordon S. Seastrunk, M.D., Columbia, S. C.—Individual Ligation in Pneumonectomy and Extra-mediastinal Individual Ligation in Lobectomy—An Analysis of the Authors Series. Illustrated.
21. Parker C. Hardin, M.D., Monroe, N. C.—Cod Liver Oil Therapy of Wounds and Burns. Illustrated.
22. James R. Garber, M.D., Birmingham, Ala.—Realities in Obstetrics.
23. W. Lowndes Peple, M.D., Richmond, Va.—The Results of Radium Treatment of Cancer of the Cervix. Illustrated.

2:30 P. M.

24. Elkin L. Rippy, M.D., Nashville, Tenn.—Management of Gun Shot Wounds of the Abdomen. Illustrated.
25. Alfred I. Folsom, M.D., Dallas, Tex.—Some Minor Urological Procedures of Value to the General Practitioner. Illustrated.
26. J. M. Emmett, M.D., Clifton Forge, Va.—The Surgical Treatment of Carcinoma of the Stomach. Illustrated.
27. Charles F. Geschickter, M.D., Baltimore, Md.—The Endocrine Aspect of Chronic Cystic Mastitis. Illustrated.
28. J. Orville Morgan, M.D., Rocky Mount, N. C.—The Diagnosis and Treatment of Delayed and Immediate Traumatic Rupture of the Spleen with Report of Cases. Illustrated.
29. Byrd Charles Willis, M.D., Rocky Mount, N. C.—The Diagnosis and Treatment of Delayed and Immediate Traumatic Rupture of the Spleen with Report of Cases. Illustrated.

7:00 P. M.

Banquet—The Virginia Room—Everybody Invited.

Wednesday, March 12, 9:00 A. M.

30. Temple Fay, M.D., Philadelphia, Pa.—Further Observations on Human Refrigeration. Illustrated.
31. Harley R. Shands, M.D., Jackson, Miss.—Cancer of the Ovary. Illustrated.
32. C. C. Howard, M.D., Glasgow, Ky.—Review of 6,000 Spinal Anesthetics from the Viewpoint of the Surgeon. Illustrated.
33. William G. Hamm, M.D., and Jos. Hiram Kite, M.D., Atlanta, Ga.—The Relief of Contractures of the Knee Following Extensive Burns. Illustrated.
34. Walter G. Stuck, M.D., San Antonio, Texas—The Prevention of Deformities from Compound Fractures. Illustrated.
35. Conrad G. Collins, M.D., New Orleans, La.—Management of Abortion. Illustrated.

2:30 P. M.

36. Gabriel Tucker, M.D., Philadelphia, Pa.—Cancer of the Larynx, Diagnosis, Treatment and Results with Observations on the Relation of Benign Tumors to Cancer. Illustrated.
37. J. Duffy Hancock, M.D., Louisville, Ky.—Mesenteric Tumors. Illustrated.
38. Robert B. McIver, M.D., Jacksonville, Fla.—Ureterocolostomy: A Study of Late Results. Illustrated.
39. Edgar F. Fincher, M.D., Atlanta, Ga.—Meningiomas. Illustrated.
40. Murdock M. Snelling, M.D., Gulfport, Miss.—The Treatment of Chronic Cervicitis and Allied Conditions with the Surgical Diathermy. Illustrated.
41. Justus C. Pickett, M.D., Morgantown, W. Va.—The Role of the Fascia in Low Back Pain. Illustrated.

The Quinine Industry.*

Since the invasion of Holland on May 10, there have been persistent rumors of Nazi attempts to interfere with the Dutch quinine industry. The actual facts appear to warrant the following statement.

Heretofore Amsterdam has been the headquarters of an industry which has assured the supply of this world-wide remedy for malaria. By royal decree the management of this quinine industry was transferred to Bandoeng, Java, on May 14, 1940.

We have been warned, although the warning was scarcely necessary, to have no communication with

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our former associates in Amsterdam for fear such correspondence might be diverted to Nazi ends.

Java is now the center of the world's quinine industry, where ample production is assured of both cinchona bark and manufactured quinine. The latter is produced at the Bandoengsche Kininefabriek, the largest quinine factory in existence. There is thus no danger of a quinine shortage anywhere in the world.

The quinine industry, now centralized in the Netherlands East Indies, is completely Dutch and completely determined that Holland's plight shall not be turned to Nazi advantage. That attitude also actuates those connected either with the sale of Dutch quinine here or with the research and educational program of that industry.

NORMAN TAYLOR, *Director,*
CINCHONA PRODUCTS INSTITUTE, INC.,
NEW YORK, N. Y.

U. S. Becomes Independent of Quinine Importations.

SUBSTITUTE DEVELOPED BY AMERICAN SCIENTISTS PROVES TO BE JUST AS EFFECTIVE AS FOREIGN PRODUCT

American science was declared to have made this country independent of foreign sources of quinine.

Faced with a threat of war imposing a blockade on importations of quinine, chiefly from the Dutch East Indies, intensive tests have been made on the use of atabrine, a synthetic anti-malaria drug.

The tests indicate, according to a report by Dr. H. C. Clark, director of the Gorgas Memorial laboratory, Panama, and Dr. William H. W. Komp, United States Public Health service engineer, Ancon, Panama, that the synthetic drug is just as effective as quinine in stopping the chills and fever of malaria and helping to rid the body of the bacteria which cause it.

SOME PREFER ATABRINE

"We consider quinine and atabrine of equal therapeutic value," they said in a report to the American Association for the Advancement of Science on results of a series of tests on natives of Panama, near the eastern boundary of the Canal Zone.

The people were split into three groups—those receiving atabrine, those given quinine, and a control group given quinine only if they asked for it. Atabrine proved just as effective as quinine in reducing the infection rate from 45 per cent to about 7 per cent in the two treated groups, they declared. "Good results were obtained from the viewpoint of increased labor efficiency and clinical cures."

Atabrine is preferred to quinine by most people who have taken both, they added, although quinine is at present a more economical drug for general use.

TESTS MADE BY ARMY

The importance of atabrine was indicated in tests made by the United States army during troop maneuvers in Texas last summer. Government authorities have been concerned about supplies of quinine and opium for the manufacturing of morphine and other sedative drugs.

In the latter instance, drug firms of the country, supplied funds for the government's importation of opium from Turkey and today 300 tons of it are in the United States treasury vaults in Washington—a supply sufficient for the needs of the United States, Canada and Latin American countries for several years to come.

From the standpoint of defense of the Western Hemisphere medical men are prepared to meet the needs of enlarged armies and navies and to provide them with necessary preventive drugs and vaccines. (Associated Press Clipping from *Flint, Mich. Journal,* January 1, 1941.)

Fundamental Principles of Treatment of Gonococcal Infections of Women

1. The majority of gonococcal infections of urethra and cervix seen in practice will recover in six months more or less without tubal infection if judiciously handled and allowed to do so.

2. Injudicious local treatments can and often do spread the infection to the tubes.

3. Abstinence from alcohol and sexual excitement of every sort is essential.

4. There is no evidence that local applications or treatments applied to the vagina or the cervix are curative. Vaginal douches, topical applications to the cervix, and cauterization of the cervix are *not* curative procedures while the gonococcal infection persists. Local applications of heat may relieve symptoms, but are never curative and are unnecessary (this includes diathermy). There is always danger that such treatments may cause tubal infection.

The vaginal approach is useful only (a) to help establish a diagnosis or observe the result of treatment by noting the amount and type of cervical discharge and the appearance of the cervix, (b) to take spreads and swabs for culture from the cervical

canal, and (c) to satisfy the patient. Cauterization is used to advantage in treating secondary infection of the cervix only after the gonococcal infection has been eradicated. In some long persistent cases of secondary endocervical infection it is necessary to "cone out" the cervix to eliminate the area of infection.

Diagnosis by spreads alone, even in expert hands, is notoriously inaccurate. Positive cultures are of enormous value, especially after the acute phase has subsided. Single negative spreads and cultures have no significance. Swabs must be taken with technical care to obtain positive cultures or spreads. Use no lubricant on speculum.

A. Cleanse cervical os and remove mucus plug with sterile cotton. Insert cotton swab well into cervical canal. Cultures must be made on plates before swabs dry or gonococci will not grow.

B. When taking spreads or cultures from the urethra be sure patient has not urinated recently. Massage urethra downward with forefinger. Insert swab well into urethral canal after cleansing external meatus.

C. Express contents of Bartholin's glands by "milking" for spreads and cultures.

At times diagnosis must depend on clinical findings alone when spreads and cultures are negative. If such are fortified by history of intercourse with an infected partner, for instance, treatment may be indicated in spite of negative laboratory findings.

TREATMENT

The only curative methods at our disposal in cases of acute or subacute gonorrheal endocervicitis are: (1) use of sulphonamides in adequate amounts, (2) artificial fever, which can only be carried out satisfactorily and safely in a few institutions with large and well-trained staffs.

SULPHONAMIDES

Inadequate dosage is not curative but masks the infection, reducing discharge and rendering "spreads" as well as cultures negative. Dosage should be adequate and patient must be seen at least every 48 hours.

EXAMPLE OF ADEQUATE THERAPY SULFATHIAZOLE

Sulfathiazole is far more effective and less toxic in adequate dosage than is sulfanilamide. Adequate dosage (J. F. Mahoney and C. J. Van Slyke) consists in giving sulfapyridine or sulfathiazole, 1 tablet, Gms. 0.5 (grains 7½ per cent) every four hours at 8 A. M., 12 M., 4 P. M., and 8 P. M. (daily total amount Gms. 2.0) for twelve days and no longer. Such doses very rarely cause toxic symptoms and give excellent curative results. Sulfathiazole given in same way is preferable to sulfapyridine and is practically non-toxic and more effective. Acute gonococcal salpingitis requires bed and often hospital treatment. Administration of sulfathiazole or sulfapyridine as described above is remarkably successful. Fever, pain, and tenderness almost, or entirely, disappear in from forty-eight hours to ninety-six hours in nearly all cases.

*If patient is not improved after five days' administration of sulfathiazole or cured after twelve days, change to sulfapyridine and treat with same dosage twelve days. (Reverse procedure if sulfapyridine is first used.) Limitation of fluids is unnecessary. Toxic symptoms which indicate stopping treatment: 1. fever, 2. severe gastro-intestinal disturbance, 3. hemolytic anemia or agranulocytosis, and 4. drug rash.

In our own experience sulfathiazole is far less toxic and yields better results in the treatment of gonococcal infections than does even sulfapyridine. There is every reason to believe that given as here recommended one may expect cures in more than 80 per cent of one's cases.

Other than slight headaches, slight nausea or malaise we have had no evidences of toxicity. We have seen no renal disturbances nor crises of anemia. Patients with hemglobin of less than 50 per cent or a proportionally low red blood cell count should not be given sulfapyridine or sulfathiazole.

When sulfathiazole is given in the doses here recommended there appears to be no need of carrying out blood concentration tests for other than investigative work. The concentration with these doses appears to be sufficient for clinical results.

The value of sulfathiazole in treating gonococcal infections is fairly comparable to its recognized worth in the treatment of the pneumonias.

CRITERIA OF CURE

1. No patient should be discharged as cured until four months of negative spreads, taken every two weeks, have been obtained. Must also be "clinically cured". Cultures if possible should be taken once a month.

*Abscesses must be evacuated surgically as formerly.

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2. Do not forget that an infected husband or consort will reinfect the patient unless also treated. Every patient must have a Wassermann Test.

GONOCOCCAL VAGINITIS OF CHILDREN

Investigations of New York Study Group (A. Cohn et al) show that about 75 per cent of such cases recover spontaneously if untreated in six months or less. Estrogenic treatments give apparent good clinical results with negative spreads, BUT cultures remain positive as long as in untreated cases.

Best Treatment. Sulfapyridine (or sulfathiazole) given in daily total doses of Gr. ½ per pound of body weight will probably cure 90 per cent of such cases if continued for seven to twelve days. Four doses should be given at four hour intervals daily. Total daily dose should not exceed Grams 2. Children tolerate this well. They should remain under observation six months after apparent cure.

It is urgent that pregnant patients with gonococcal infections should be treated and cured before delivery. Both patient and fetus tolerate remarkably well the dosage just described. Pregnancy does not add risk to the use of sulfapyridine or sulfathiazole.

The same method of treatment with the same dosage just described is recommended for male patients, and yields like results.

NOTE.—By Robert M. Lewis, M.D., New Haven, in The Connecticut State Medical Journal, Vol. IV, No. 11, November, 1940.

Copies of this reprint may be secured from American Social Hygiene Association, 1790 Broadway, New York, N. Y.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. GRIFFIN HOLLAND, Eastville.
President-Elect—MRS. E. LATANE FLANAGAN, Richmond.
Recording Secretary—MRS. HAROLD W. POTTER, Hilton Village.
Corresponding Secretary—MRS. J. WALKER JACKSON, Machipongo.
Parliamentarian—MRS. JAMES B. STONE, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, Richmond.
Chairman, Press and Publicity—MRS. HENRY M. SNEAD, Petersburg.

Norfolk Auxiliary.

The Auxiliary to the Norfolk County Medical Society held its regular meeting on January 20. There were four new members present.

The treasurer was instructed to send $10.00 to the Leigh-Hodges-Wright Memorial bed and $10.00 to the Maintenance Fund. The Layette Chairman reported that two layettes had been completed and were available when there was a call for them.

Following the business meeting, the annual Public Relations Tea was held, to which members of various women's organizations had been invited. There were thirty-six guests. Mr. H. G. Parker, Director of Public Welfare, spoke on New Governmental Problems in Norfolk in Connection with Defense Activities.

The next meeting will be at a luncheon on March 25, at which time the State President, Mrs. G. W. Holland, will be the guest of honor.

RUTH WILSON,
(MRS. F. D. WILSON).

The Auxiliary to the Northampton-Accomac Society

Met on January 14 at the home of Mrs. W. J. Sturgis of Nassawadox, with twenty members present. The newly elected president, Mrs. J. L. DeCormis, presided.

Dr. T. F. McGough, the health officer of Northampton County, gave a very interesting talk on "The Needs of Northampton and Accomac Counties from a Medical Standpoint".

Mrs. G. W. Holland, State President, gave a short history of other auxiliaries in the State and told of the benefits of the auxiliary to both the doctors and their wives.

Mrs. E. W. P. Downing gave two stories about doctors and two original poems.

The Auxiliary's Christmas gift to the hospital at Nassawadox was a check for $45.00 for two chairs for patient's rooms, bringing the total to six chairs which have been given by the Auxiliary.

Mrs. John P. Hamilton read "The Story of Jane Todd Crawford", a most interesting and moving history of a pioneer woman's operation in the wilderness of Kentucky, taken from the book "Doctors on Horseback". This paper was published in both the Accomac and Northampton County papers.

Hygeia was placed in four high schools and one beauty parlor, through the efforts of Mrs. DeCormis.

An auction of foods for general funds was followed by a social hour, with delicious refreshments served from a beautifully appointed table.

The April meeting will be a luncheon at the home of Mrs. E. W. P. Downing, Franktown.

CATHERINE RUSH TROWER,
(MRS. HOLLAND TROWER),
Chairman, Press and Publicity.

Jane Todd Crawford.

Mrs. Crawford was born in Rockbridge County, Virginia. Very little is known about her parents but her father, Samuel Todd, was at one time sheriff of Botetourt County. According to the records, Jane Todd Crawford must have been forty-two years old when she moved away from Virginia.

Dr. McDowell was also born in Rockbridge County, but nine years after Jane Todd's birth. His family moved to Kentucky when he was a small boy. He returned to Virginia for a while when he entered the office of Dr. Alexander Humphries in Staunton as a medical student.

While all credit must be given Kentucky for beginning the plans for a memorial to Mrs. Crawford, the above demonstrates that Virginia may appropriately take an active part in bringing recognition to this heroic son and daughter of our State. It is hoped that someone will be able to undertake the project of locating Mrs. Crawford's birthplace and ascertaining more about the years spent in the land of her birth.

This year the type of memorial will be definitely decided upon by the Auxiliary to the Southern Medical Association which has taken over the project. It will be educational in nature, perhaps a fund to help sons of doctors finish their medical education if the father has passed away or has become disabled. Two thousand dollars is the goal set by the Southern for this year. When this is raised it might be enough to start work. $1,256.16 is now held by the Southern. An additional $54.00 is on hand in Virginia.

The plan of asking each member to contribute ten cents has been used in Virginia, and, while an Auxiliary need not limit itself to this amount, I feel that a dime given by each member with the proper recognition and appreciation of Mrs. Crawford's bravery and her invaluable aid to Dr. McDowell in opening up a new field in surgery will be the highest type of tribute. I hope that each Auxiliary will allot time on one of its programs for the story of Mrs. Crawford to be retold and that each of our 345 members will take part in making the fund grow.

GLADYS LEE HAMILTON,
(MRS. JOHN R. HAMILTON).

Headquarters for A. M. A. Meeting.

Hotel Carter will be the headquarters for the annual meeting of the Woman's Auxiliary to the American Medical Association, which will be in Cleveland, June 2-6. Requests for reservations should be sent immediately to Dr. Edward F. Kieger, Chairman of the Committee on Hotels and Housing, 1604 Terminal Tower Building, Cleveland, Ohio.

Book Announcements

Books received for review are promptly acknowledged in this column. In most cases, reviews will be published shortly after the acknowledgment of receipt. However, we assume no obligation in return for the courtesy of those sending us the same.

Electrocardiography in Practice. By ASHTON GRAYBIEL, M.D., Instructor in Medicine, Courses for Graduates, Harvard Medical School; Research Associate, Fatigue Laboratory, Harvard University; and Assistant in Medicine, Massachusetts General Hospital. And PAUL D. WHITE, M.D., Lecturer in Medicine, Harvard Medical School; Physician, Massachusetts General Hospital, in charge of the Cardiac Clinics and Laboratory. W. B. Saunders Company. Philadelphia. 1941. 319 pages, with 272 illustrations. Cloth. Price, $6.00.

Plague On Us. By GEDDES SMITH. New York. The Commonwealth Fund. 1941. Octavo of 365 pages. Cloth. Price, $3.00.

Clinical Pellagra. By SEALE HARRIS, M.D., Professor Emeritus of Medicine, University of Alabama. Assisted by SEALE HARRIS, JR., M.D., Formerly Assistant Professor of Medicine, Vanderbilt University. With Foreword by E. V. McCollum, Ph.D., Sc.D., LL.D. St. Louis. The C. V. Mosby Company. 1941. Octavo of 494 pages. Cloth. Price, $7.00.

Textbook for Male Practical Nurses. By GAYLE COLTMAN, R.N. New York. The Macmillan Company. 1941. 12mo of 215 pages. Cloth. Price, $2.00.

The American College of Physicians. Its First Quarter Century. Historian—William Gerry Morgan, M.D., LL.D., Sc.D., M.A.C.P. Philadelphia. 1940. 271 pages. Cloth.

Manual of Clinical Chemistry. By MIRIAM REINER, M.Sc., Assistant Chemist to The Mount Sinai Hospital, New York. Introduction by Harry Sabotka, Ph.D., Chemist to The Mount Sinai Hospital. 1941. Interscience Publishers, Incorporated. New York. 12mo. of xv-296 pages. With 18 Illustrations. Cloth. Price, $3.00.

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Editorial

The Value of Mature Clinicians to the Teaching Staff of a Medical College.

The remark is often made that the present age is the young man's age, both in business and in the professions. With respect to the professions, this seems to be more true in scientific and technical fields than in philosophical and cultural pursuits, the reason being that in the former, the rapid growth of knowledge and the numerous changes constantly being made in technology make it difficult for older men to keep abreast of the times.

The rapid development of scientific medicine during the last thirty years has created a great demand in our medical colleges for young full-time teachers. They have been recruited from the ranks of academically-minded young men who prefer the research laboratory and the lecture room to the wear and tear of practice. Professional teaching in medical schools has become an attractive career to young graduates in medicine who discover that they are more interested in the academic and scientific side of medicine than in its practical application. To be sure, instructors and professors of medicine are practitioners in the sense that they make daily rounds in the wards and minister to the ailments of ward patients, but their interest is largely centered in the pathological, physiological and diagnostic aspects of disease and too often the therapeutic side is neglected. However, patients, even ward patients, come to the hospital to be cured, and one reason for the great success of the Mayo Clinic and other such institutions is that their primary interest is in the *cure* of sick people. The practitioner, to be successful, must have a genuine zeal for therapeutics. He must be full of therapeutic resources so that when one thing fails, another can be tried. After many years of experience and of following the same patient from early youth to old age, he learns much that is not found in textbooks, as well as a valuable perspective that cannot be acquired from the rapid turn-over of acutely ill patients in a ward. For this reason the mature clinician, the wise practitioner, who has practiced medicine for twenty to thirty years, has something of great importance to offer to the modern medical student. By all means let us have the benefit of the young full-time teacher! He is usually specializing in some particular phase of medicine or surgery and his training in the fundamentals is superior to that of the older men; for these reasons he is indispensable to the modern medical faculty. But let us not forget that the wise and experienced practitioner will always have an important message for the medical student, most of whom will inevitably go into the general practice of medicine.

R. L. C.*

*Russell L. Cecil, M. D., Professor of Clinical Medicine, Cornell University Medical College, New York City.

Selective Service and the Medical Student.

The question of what to do with medical students who fall within the draft age has not yet been settled. In reaching a decision one must bear certain facts in mind.

The education of a medical student requires eight years. Two years must be spent in college in the study of the basic sciences, chemistry, physics and biology. This period is usually described as pre-medical. Four years must then be spent in medical college learning the principles of medical practice. Two final years are necessary in hospital interneship before the student is considered well enough equipped to engage in independent medical practice. The preservation of the continuity of such a course of education is obviously of the greatest importance. The student cannot break the natural sequence of the medical curriculum without serious penalties to his professional career.

His personal loss, however, is not the main point in a consideration of the Selective Service Act and the medical student. Medical students and poorly equipped doctors are of no value in the medical department of the military service. It is always necessary to have additional physicians in the medical service at a time of emergency and we defeat this end if we take into the service medical students and graduates before they have been sufficiently trained. To those who argue that medical students should not be regarded as a class apart and that since this is a democratic country, they should come under the same rules as apply to other youths of like age, we must reply that we are not only ruining the medical careers of many promising young men, but are squandering the money the State has spent upon their education when we draft them for positions in which their medical knowledge can be of no service to the State.

Something else can be said in support of the contention that medical students should be allowed to complete their professional education before being called to service. In nearly every medical school there is a two-year course in military medicine from which students graduate directly into the medical reserve corps of the army. Such medical students can therefore be regarded as already partially trained for military service when they have completed their formal medical education.

But it should be again emphasized that a doctor is not prepared to practice medicine until after his internship and, by the same token, he does not belong in the army.

It seems to us that all students of medicine, whether in their period of pre-medical work or in their four years in medical college, or in their two years as internes, should automatically be placed in the deferred class. Physicians who wish to go into specialization and to take up special interneships at the completion of their period of general interneship should not be allowed to offer this intention as a substitute for active military service.

Jail Reform.

We came very close to realizing the dreams of those interested in jail reform in Virginia during a meeting of the last legislature. The reforms proposed then will probably be accomplished by the passage of a bill which will be presented to the next General Assembly. In the place of ninety-nine county and sixteen city jails operated without unity of plan, dirty and inefficient, we hope for a consolidation of these essential institutions into regional jails, clean, well built, and efficiently operated.

Physicians are naturally interested in any proposed improvement in the medical care of jail inmates. There are now more than 100 jail doctors in Virginia, one for each county, city and camp. They are appointees of the local courts. The camp physicians are on contract. The others serve on a fee basis, seventy-five cents for the first case, fifty cents for others. Only minor illnesses can now be treated in jails in Virginia. Serious illnesses and surgical cases have to be moved to hospitals. There is no standardization of procedure which would insure efficient medical service. There are few infirmaries in the jails and no nursing care to speak of. A recent description of the "bull pen" in Richmond gives a horrid picture of existing jail hygiene and sanitation little different from that suggested by the old Rockefeller-restored jail at Williamsburg.

There is wide room for medical reform in the penal institutions in Virginia, and it is to be hoped that with a few regional jails and the wider use of prison camps, well organized and equipped infirmaries will be provided, a unified medical organization set up, a centralized bureau of inspection established and good doctors on a salary basis employed. If these are the changes Virginia doctors desire, they had best not take their accomplishment too much for granted.

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Keeping Up With Influenza.

As a sequel of infection with the virus of influenza, in both animals and human beings, the appearance in the blood of specific antibodies has been satisfactorily demonstrated. Following a single dose of Horsfall's influenza-distemper virus vaccine, antibodies appear in about two weeks. This suggests that this vaccine has prophylactic value, but it does not prove it, for it is well known that antibodies may appear independently of such protection. The results of properly controlled mass vaccination in the presence of an epidemic of influenza will have to be awaited before the proper evaluation of prophylactic vaccination can be made.

The other important fact to be determined about the virus of influenza relates to classification. Up to the present time two immunologically distinct groups have been recognized. Virus A has been shown by Smith, Andrews and Laidlaw to produce specific antibodies. It can be identified with certainty in the laboratory. Sub-groups of it likewise may be identified. There are, however, many cases of clinical influenza which do not fall into this immunologically specific group. For the present they belong to a class comparable to the old Group IV pneumococcus, a sort of immunologic waste basket. Further investigation will undoubtedly identify the causative factor in this large group of cases of unknown etiology.

A Paean For Paracelsus.

A few days ago the New York Academy of Medicine assembled in solemn acknowledgment of the Four Hundredth Anniversary of the death in Salzburg of one of the most enigmatic characters of medical history.

This man called himself Phillipus Theophrastus Aureolus Paracelsus Bombast von Hoenheim. Boastful, vulgar, disputatious, an ardent disciple of alchemy, a chatterer of cabalistic nonsense, he wandered through Europe from one professorship to another, and death came to him in a tavern brawl. It would be astonishing indeed for the medical world to pause four centuries after his death to pay tribute to his sojourn on earth if these facts were all his claim to fame.

It has been said that a man's faults are only the reverse side of his virtues. It is to this other side of Paracelsus that we must turn for an explanation of the world's homage to him.

In a day when the hand of the past was heavy beyond belief, Paracelsus had the daring to put aside the use of the traditional Latin tongue to lecture in the vernacular of the German world in which he moved, and in a day when filth was an accepted concomitant of human living, he was an advocate of asepsis. He wrote a creditable work on surgery, *Chirurgia Magna.* His *Von der Bergsucht,* a short book on miners' diseases, places him among the earliest writers on occupational diseases. His *De Gradibus* is a treatise on therapy which strikes the first modern note in medical treatment. He was the first to use mercury in the treatment of syphilis, and also introduced into the Pharmacopoeia lead, sulphur, iron, arsenic, copper and laudanum. He was the first to identify goitre with cretinism. The old quack was the first powerful assailant upon the ancient unchanging tradition of medicine. He gave the death blow to Galenical therapy and set men thinking in a way that must earn for him man's eternal gratitude.

Jittery Induction Boards.

A great noise has been made over the acceptance of tubercular persons for military service in the last war. There is now a determination everywhere that federally operated tuberculosis sanitaria shall not be overrun by pulmonary cases admitted under the present emergency.

There was also after the last war an enormous post bellum residuum of nervous and mental casualties which might have been prevented by wiser and better instructed examining boards. It is generally understood that the experts in Washington who are heading up the present organization charged with the responsibility of the nervous and mental examinations of draftees appearing before induction boards, have gone the limit in setting up standards of acceptance and have turned on the pressure in their instructions to representatives of their specialty sitting on induction boards.

As a result, of the 228 men reporting in Roanoke to the induction board in the fourth selective service call in Virginia, seventy-three were rejected. Of these seventy-three men, thirty-one, or 40 per cent were rejected on the ground of their being mentally defective. This is too high a percentage. It is obvious that 13 per cent of young men of military age should not be excused from military service because of "mental defectiveness". Clanking spurs and thundering voices must have given us the jitters.

Artificial Insemination.

Up until June, 1940, according to a recent questionnaire sponsored by the National Research Foundation for Eugenic Alleviation of Sterility there have been 9,238 children born in the United States as a result of artificial insemination. Five thousand seven hundred and twenty-eight of these children were produced by artificial insemination in which the husband of the mother was employed. In 3,510 cases, donors were used. More than 5,000 doctors participated in these reported results.

Apparently it was not always easy to bring about pregnancy by artificial insemination, but in some instances many unsuccessful attempts were followed by a satisfactory result. One hundred and twenty-four physicians, for example, reported final success in cases after more than twenty-one failures at insemination. Among those artificially inseminated 2.3 per cent miscarried, there were twenty-two extra uterine pregnancies and forty-four flare-ups of previously existing infection.

The medical profession has gone a long way, eugenically speaking, since the days when they fought over contraceptive advice as a eugenic and economic measure. Artificial insemination of human beings using material from donors is something few of us would have dreamed of a decade ago. Few of us would dream today that it is being practiced on such a wide scale as this survey has revealed.

An Organization of Southern Scientists.

There is a movement on foot to organize at the meeting of the Alabama Academy of Science, March 20-22, 1941, in Mobile, a southern Scientific Society which might later function as the southern division of the A. A. A. S. It has been pointed out that such an organization would offer an opportunity for joint symposiums on problems common to the South, with possibly a reduction of the number of local meetings. It would give unity, purpose, and stimulation to academic and industrial research in the South. It would also create opportunities for scientists in certain fields where there are not now enough workers for independent organizations, and it would serve as a means of developing a conscious interest in research on the part of the general public in the South. In fact, such an organization would prove a clearing house for scientists in this area. An organization of this character should interest physicians in view of the fact that it is proposed to incorporate in it sections on biology and medicine.

Department of Clinical and Medical Education of the Medical Society of Virginia

Postgraduate Clinics.

The annual spring postgraduate clinics of the Medical College of Virginia will be held in Richmond in conjunction with the Stuart McGuire Lectures which will be delivered by Dr. Alfred Blalock of Vanderbilt University on April 24 and 25.

The twenty-seventh semi-annual postgraduate clinic of the University of Virginia Department of Medicine will be held on Friday, April 11. It will deal with "Present Concepts of Therapy" with special reference to digitalis, sulfonamide, deficiency states, sex-hormones, and fluid balance. An announcement of the full program will be mailed to all doctors shortly.

Short Courses.

Plans are now being made for a short course of one week's duration to be held at the University of Virginia Medical School during the week of June 16-21. The enrollment limit of twenty established last year will be extended to forty for the coming course due to requests received from doctors in the State. The general subject will be "Recent Advances in Internal Medicine". Specific topics will be selected through interviews with those who plan to enroll. A full announcement of the course will be distributed in April.

The Danville-Pittsylvania Academy of Medicine is now offering a course of eight discussions dealing with Internal Medicine, Psychiatry, Obstetrics and Gynecology. The first two discussions of the series were conducted by Dr. C. J. Andrews of Norfolk and Dr. Floyd E. Boys of the University of Virginia Department of Medicine. The March program will be conducted by Dr. D. C. Wilson of the University of Virginia Deparment of Medicine.

Consideration is also being given to courses for the

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spring or early summer by the Elizabeth City County Medical Society, Loudoun County Medical Society, and the Lynchburg Academy of Medicine. These societies have been submitted suggestive programs dealing with surgery, internal medicine, orthopedics, obstetrics and gynecology. Possible speakers are also suggested for the topics included.

Component societies considering courses in the near future may receive this suggestive list of topics and other assistance by addressing the Executive Secretary.

GEORGE B. ZEHMER, *Executive Secretary.*
University, Virginia.

Proceedings of Societies

Virginia State Board of Medical Examiners.

The following doctors were granted certificates to practice at the December examination of the Board:

Dr. Charles Palmer Alexander, Richmond.
Dr. Charles Lee Beavers, Franklin.
Dr. Leslie M. Bell, Boston, Mass.
Dr. Samuel Michael Bloom, Clifton Forge.
Dr. Arville Wayne Bradford, Derby.
Dr. Chester Dale Bradley, Hampton.
Dr. John Carter Branham, Arlington.
Dr. Richard Lewis Brown, Jacksonville, Fla.
Dr. William Thomas Cassano, Front Royal.
Dr. Mortimer Taliaferro Clement, Washington, D. C.
Dr. Claude Everett Cooper, Washington, D. C.
Dr. Jerome A. Cope, Arlington.
Dr. Thomas Henry Dickerson, Martinsville.
Dr. Carolyn Heston Lucas Dickson, Washington, D. C.
Dr. Leon Ashby Dickson, Washington, D. C.
Dr. Martin L. Dreyfuss, Clifton Forge.
Dr. Jerome Feldman, Richmond.
Dr. Ralph Frazier, Galax.
Dr. June Uriah Gunter, Roanoke.
Dr. Grover Cleveland Godwin, Roanoke.
Dr. John Clifton Gordon, Bluefield, W. Va.
Dr. Herbert Bryan Hutt, Alexandria.
Dr. Frederick Joseph Jardon, Philadelphia, Pa.
Dr. Benjamin Milton Kagan, Richmond.
Dr. Thornton Kell, Bluefield, W. Va.
Dr. Tom Hedrick Kuhnert, Bristol, Tenn.
Dr. Nolton Senard Lieberman, Norfolk.
Dr. Sterling Morrison Lloyd, Washington, D. C.
Dr. Robert Bruce Mallett, Orange.
Dr. John Walter Martin, Washington, D. C.
Dr. Dillon Rymer McClary, St. Charles.
Dr. Milton Millman, Stonega.
Dr. Vito John Murgolo, Cradock.
Dr. Raymond Ben Newman, Phoebus.
Dr. Joel N. Novock, Washington, D. C.
Dr. Carlton Lee Ould, Roanoke.
Dr. Joseph E. Paganelli, Virginia Beach.
Dr. Williams Edwin Pembleton, Richmond.
Dr. Willard L. Quennell, Norfolk.
Dr. Robert Stewart Randall, Washington, D. C.
Dr. Samuel Gilmore Saunders, Staunton.
Dr. Joseph Morton Schoenfeld, Norfolk.
Dr. Ernest Luke Shore, Atlantic City, N. J.
Dr. Elbert Brown Singleton, Richmond.
Dr. Gertrude Slater, New York, N. Y.
Dr. John Dennis Snider, Ashburn.
Dr. Byron William Steele, Mullens, W. Va.
Dr. Vernon Andrew Stehman, Arlington.
Dr. Henry G. Steinmetz, Arlington.
Dr. E. Christopher Stuart, Jr., Durham, N. C.
Dr. George James Stuart, Arlington.
Dr. William Wickham Taylor, Norfolk.
Dr. John Samuel Thiemeyer, Portsmouth.
Dr. Thomas Brent Wayman, Cincinnati, Ohio.
Dr. Albert Franklin Dilworth (Osteopathy), Front Royal.

The Augusta County Medical Association

Held its regular quarterly meeting in Staunton on February 5, with Dr. S. H. Garst of Staunton presiding. The program consisted of the following papers: "Metastases in Malignant Diseases" by Dr. Marshall J. Payne, Staunton, in collaboration with Dr. Philip Shultz of the University of Virginia; "Recent Studies in Hypertension" by Dr. John Guss, Churchville; and "Anemia" by Dr. Byrd Leavell of the University of Virginia.

Dr. V. A. Turner of the Augusta County Health Department presented an outline of a plan for Maternal and Child Welfare Clinics to be held in Staunton at stated intervals for pregnant women and children of Augusta County.

The secretary, Dr. Joseph E. Cox of Waynesboro, is among those who have been called to active duty in the army for the year beginning March 1.

Lynchburg Academy of Medicine.

The Academy held its first meeting of the year at a dinner at the Virginian Hotel on January 6. There was a large attendance of members and guests. An

interesting program was presented by Dr. H. Hudnall Ware, Jr., Richmond, who spoke on "Ectopic Pregnancy, Incidence and Analysis", and Dr. R. A. Ross, Duke University, Durham, N. C., who gave a paper on "Endocrine Therapy in Sex Endocrinology". Officers for the year were also installed at this meeting.

The February meeting of the Academy was held on the 3rd, with the president, Dr. Powell G. Dillard, presiding.

Dr. Oscar Swineford, Assistant Professor of Medicine, University of Virginia, presented a very practical paper on "Symptomatic Treatment of Allergic Diseases", and Dr. E. M. Landis, Professor of Medicine at the University, gave an illustrated paper on "Recent Work on Human Hypertension". Both papers were enjoyed by a large turn-out with lengthy general and group discussions following.

C. E. KEEFER,
Secretary.

Richmond Academy of Medicine.

On the evening of February 11, the seventh annual dinner and meeting of the Section on the History of Medicine of the Academy took place at the home of the Academy. The occasion of this meeting is known as the "Walter Reed Lectureship".

Dr. J. Morrison Hutcheson, Chairman of the Section, presided and presented to the members and their wives the distinguished guest speakers of the evening, Dr. Reginald Fitz of Boston, Massachusetts, and Dr. Andrew D. Hart, Jr., of Charlottesville.

Dr. James K. Hall, Chairman of the Nominating Committee, brought in the following slate of officers for the ensuing year: Dr. M. Pierce Rucker, Chairman; Dr. W. Lowndes Peple, Vice-Chairman, and Dr. A. Stephens Graham, Secretary-Treasurer. These were elected to their respective offices.

At 8:30 P. M. the guests adjourned to the auditorium where, with the entire Academy membership, they listened to the addresses of the guest speakers. Dr. Hart spoke on "Ignorance and Medicine" and Dr. Fitz on "The Story of Appendicitis".

Tazewell County Medical Society.

At the regular bi-monthly meeting of this Society in Tazewell in January, Dr. Hugh B. Brown of Draper was the guest speaker, his subject being "The Relationship between the Health Departments and the Local Physicians". In the business meeting following, Dr. Thornton Kell of Bluefield and Dr. John S. Pearson of Jewell Ridge were elected to membership.

Dr. J. P. Williams of Richlands and Dr. Mary Elizabeth Johnston of Tazewell are president and secretary of this Society, respectively.

Albemarle County Medical Society.

At the regular monthly meeting on February 6, Dr. Eugene Landis spoke on "Practical Aspects of Kidney Function Tests".

Dr. Wm. H. Wood, Jr., and Dr. E. W. Kirby, Jr., are president and secretary, respectively, of this Society.

Neuropsychiatric Society of Virginia.

At the winter meeting of the Society in Richmond, the following papers were presented: Yeast Infection of the Nervous System by Dr. J. Asa Shield; Mental Deterioration in the Psychoses by Dr. Ernest H. Alderman; and Suicidal Attempts as Seen in a General Hospital by Dr. Patrick H. Drewry, Jr., all of these doctors of Richmond; and The Problem of the Psychotic Personality in the Feebleminded Institution by Dr. George B. Arnold of Colony. A business session followed at which Dr. W. Gayle Crutchfield was elected president and Dr. Howard R. Masters vice-president. Dr. Edward H. Williams was re-elected secretary-treasurer. All officers are of Richmond.

The Richmond Pediatric Society,

At its annual meeting in January, elected the following officers for the ensuing year: President, Dr. Louise Fry Galvin; vice-president, Dr. T. Stanley Meade; and secretary-treasurer, Dr. Herman W. Farber.

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News Notes

1941 Medical Society of Virginia Meeting.

Dates have been definitely set for the 1941 meeting of the Medical Society of Virginia as October 6, 7 and 8. The place is Virginia Beach, with headquarters at Cavalier Hotel. Several hotels are in easy walking distance, so there will be ample room to accommodate those who attend. Only business sessions will be held on the first day, Monday. The Council will have a luncheon meeting and the House of Delegates will meet that afternoon. Scientific sessions will commence on Tuesday morning, at 9:30 a. m., with two programs a day—morning and afternoon—and one guest speaker at each. A banquet will close the convention on Wednesday evening.

The following have been appointed as a joint committee on arrangements from the Norfolk and Princess Anne County Societies: From Norfolk—Dr. George A. Duncan, chairman, and Drs. Mallory S. Andrews, J. V. Bickford, William P. Sellers, and C. M. McCoy; From Princess Anne—Dr. Ira L. Hancock, chairman, and Drs. H. F. Dormire and R. A. Stata. Dr. Duncan is general chairman for the two groups.

There is every promise of a splendid meeting and we hope for a large gathering of members.

The Southeastern Surgical Congress

Will hold its twelfth annual postgraduate assembly at the John Marshall Hotel, Richmond, on March 10, 11 and 12, under the presidency of Dr. Irvin Abell, Louisville, Ky. Dr. Julian L. Rawls, Norfolk, is president-elect. Papers will be presented and discussions will be led by distinguished clinicians whose ability as teachers will assure a worthwhile program. Morning sessions will begin promptly at 9 o'clock and afternoon sessions will begin promptly at 2:30 o'clock. During the noon hours, round table discussions will be conducted, at which time doctors are invited to ask questions on any paper presented during the morning or preceding afternoon sessions.

A cordial invitation is extended to all members of the profession who may find interest in the proceedings of this assembly.

A full program is published in the "Miscellaneous" Department on page 170 of this issue.

Promotions in State Health Department.

Dr. A. L. Carson who, since retirement of Dr. B. B. Bagby on July 1, has been acting as head of the bureau of Maternal and Child Health of the State Health Department, has been appointed by Dr. I. C. Riggin as full director of that bureau.

Dr. J. B. Porterfield, recently State epidemiologist in the bureau of Communicable Diseases, has been appointed director of the bureau of Industrial Hygiene.

Married.

Dr. George Craddock Barksdale and Miss Mary Spencer Jack, both of Lynchburg, February 1.

Dr. Wm. Fitzgerald Cavedo and Miss Edith Earline Mann, both of Richmond, February 12.

Dr. Charles Lemuel Prince, III, of the University of Virginia, and Miss Katherine Wachob Eaton of Pittsburgh, Pa., February 15.

Lt. Eugene Bowie Shepherd, M.C., class of '35, Medical College of Virginia, and Miss Mary Walker Lewis of Richmond, February 24. Lt. Shepherd is a son of Dr. and Mrs. William A. Shepherd of Richmond.

The Southwestern Virginia Medical Society

Will hold its next semi-annual meeting in Pulaski on April 16, at which time an excellent program will be presented. Dr. T. K. McKee of Saltville and Dr. James P. King of Radford are president and secretary, respectively.

New Color Film on Vitamin B Complex.

The apparently high incidence of sub-clinical deficiency states associated with lack of the vitamin B complex and the difficulty of recognizing and diagnosing such conditions make the announcement of a new motion picture on the vitamin B complex one of special interest. The title of the new film is "The Vitamin B Complex"; it is entirely in 16 mm. Kodachrome. A *sound* as well as a *silent* version is available to medical societies and medical schools.

The film is based largely on clinical material from the Nutrition Clinic, Hillman Hospital, Birmingham, Ala. The cases selected for the most part were not so much those exhibiting the classical syndromes, but rather were of the mild type frequently involving mixed deficiency states and less endemic in character.

A brief discussion of the physiological properties of the individual and better known members of the

vitamin B complex introduces the film and serves as a background for the very generous exposition of the various clinical cases that comprise the balance of the picture. Not the least interesting of the features of the film is the marked fidelity of the colors to the dermatological lesions which are reproduced.

Special emphasis is given in the film to the promptness and specificity of the therapeutic response when diagnosis has been correct. The dietary management of B complex deficiency states is outlined and harmonized with the application of the separate crystalline components of the complex.

The film, "The Vitamin B Complex", was produced under the supervision of the scientific and medical staffs of E. R. Squibb & Sons, and was reviewed before release by authorities of international repute in the field of medicine and nutrition. There is no advertising in the film which is offered solely as a conservative review of the present status of the subject. Inquiries with reference to the loan of the film may be addressed to E. R. Squibb & Sons, Professional Service Department, 745 Fifth Avenue, New York, N. Y.

Dr. Thomas E. Painter,

Recently of Williamsburg, has located in Radford, where he is associated in general practice with Dr. T. L. Gemmill.

Dr. Walter J. Rein,

Recent associate in ophthalmology of the late Dr. Emory Hill, announces the continuation of his practice at the same address in Professional Building, Richmond.

Appointed on Regional Defense Councils.

Governor Price has appointed Dr. Walter B. Martin of Norfolk as a member of the Hampton Roads regional defense council, and Dr. D. S. Divers of Pulaski to the Radford area defense council. These appointments were designed to give the councils men thoroughly familiar with the health and hospital problems in the respective regions.

Sigma Zeta Society Lecture.

Dr. E. M. Landis, professor of medicine at the University of Virginia, will deliver the annual Sigma Zeta lecture on Wednesday, March 12, at 8:30 P. M., in the Baruch Auditorium of the Egyptian Building, Medical College of Virginia. His subject will be "Capillary Physiology and Fluid Balance". The medical profession is cordially invited to attend.

The New York Polyclinic Medical School and Hospital

Announces a special lecture by Dr. Russell L. Cecil, Professor of Internal Medicine, on Wednesday, March 26, at 2:30 P. M., his subject being "The Present Status of the Theory of Focal Infection". Members of the medical profession are invited.

Dr. Richard C. Potter

Has been called into active duty at the Army Medical Center, Walter Reed General Hospital, in Washington. For the past year and a half he has been engaged in private practice at Marion.

News from University of Virginia, Department of Medicine.

The Phi Lambda Kappa Medical Fraternity annual undergraduate award, a gold medal, for the scientific thesis judged to be best was won this year by Leonard J. Yamshon, a member of the Third Year Class in the Department of Medicine of the University of Virginia. The thesis was based on the research done on a presomite human embryo under the direction of Dr. James E. Kindred of the School of Anatomy.

On January 16, Dr. C. C. Speidel addressed the Harvey Society of New York City on the subject, Adjustments of Nerve Endings.

Dr. I. A. Bigger, Professor of Surgery at the Medical College of Virginia, gave the second Alpha Omega Alpha Lecture on February 7. He spoke on Ligation of Large Arteries.

On February 7, Dr. T. J. Williams spoke before the South Atlantic Association of Obstetricians and Gynecologists, meeting in Jacksonville, Florida. His subject was Sterilization in the Puerperium.

On February 11, Drs. E. P. Lehman and Floyd Boys spoke before the Danville Academy of Medicine on the subject, Heparin and Peritoneal Adhesions.

At the meeting of the Historical Section of the Richmond Academy of Medicine on February 11, Dr. Andrew D. Hart, Jr. gave one of the Walter Reed Lectures. He discussed Ignorance and Medicine.

On February 12, Dr. Staige D. Blackford presented a paper on Swallowed Air before the Stuart Circle Hospital Clinical Club in Richmond.

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Virginia Physicians Honored by Army.

Two Virginians who served with distinction as army medical officers have been honored in the naming of two of the new army general hospitals.

One of these is the Lawson General Hospital in Atlanta, named for Brevet Brigadier General Thomas Lawson, who was born in 1793, and began his career as a surgeon's mate in the Navy in 1809. He was surgeon general of the Army from 1836 to 1861, in which year he died. His title was received in 1845 for service in the Mexican War.

The other is Stark General Hospital at Charleston, S. C., named after Colonel Alexander Newton Stark, who was born in 1869 and became a colonel in the medical corps in 1917. He was awarded the Distinguished Service Medal for work as chief surgeon, First Army, A.E.F. He died in 1926.

Children's Memorial Clinic.

At the annual meeting of the Children's Memorial Clinic, Richmond, Dr. Charles L. Outland was elected president to succeed Dr. Ramon D. Garcin. Dr. Henry W. Decker was made vice-president, and Dr. Harvie DeJ. Coghill, director of the Clinic, secretary. Dr. Manfred Call, III, was re-elected as a member of the Board for a term of three years.

The Base Hospital No. 45 Veterans Association,

Generally known as the McGuire Unit, held its twenty-first annual reunion in Richmond on February 22, at which time a bronze memorial tablet commemorating the services of the Unit in France was unveiled, it being located in McGuire Hall of the Medical College of Virginia. This tablet carries a reproduction of the hospital at Toul, where the Unit served, as well as names and rank of members of the organization. The speaker at the banquet that evening was Constantine Brown, foreign editor of the *Washington Evening Star,* his subject being "Behind the Scenes in the Second World War.

The Registry of Medical Technologists

Of the American Society of Clinical Pathologists has been moved from Denver, Colorado, to Muncie, Indiana, according to recent announcement. Since its organization in 1928 the Registry has been located in Denver, where its work has been carried on under the administration of its chairman, Dr. Philip Hillkowitz, and Mrs. Anna R. Scott, the registrar. The increasing burden of the office, together with a recent serious illness, prompted the resignation of Dr. Hillkowitz. His successor is Dr. Lall G. Montgomery, the pathologist of the Ball Memorial Hospital of Muncie. The Registry suffered a further loss in the retirement of Mrs. Scott, who has been succeeded by Miss Carlita R. Swenson, who comes from Philadelphia, where she has been associated with the United States Pharmacopoeia.

Dr. Joseph T. N. McCastor,

Class of '27, Medical College of Virginia, who has been practicing in New York City, has been appointed a Major in the Medical Corps of the 102nd Engineers, National Guard, and is now stationed at Fort McClellan, Alabama.

Coroners in Hanover County.

The following have just been re-appointed coroners in Hanover County: Dr. A. B. Gravatt for Henry District; Dr. T. E. Stanley in Beaver Dam District; and Dr. E. D. Vaughan for Ashland District.

American Academy of Pediatrics.

Region II (Southern Division) of the American Academy of Pediatrics will hold its annual meeting at the John Marshall Hotel, Richmond, on April 24 and 25. All members of the Medical Society of Virginia who are interested in pediatrics are invited to attend.

The Radford Community Hospital

Was opened in Radford, in February, with a capacity of about twenty-five to thirty beds. The building was originally erected as a hospital but was later used as an inn, and has just been renovated and had new and modern equipment installed. The board of directors is composed of Drs. J. J. Giesen, T. L. Gemmill, H. L. Dean, H. D. Fitzpatrick, E. G. Hall, and J. L. Early of Radford; and Drs. A. M. Showalter, R. H. Grubbs, R. M. DeHart, and E. P. Ambrose of Christiansburg. Dr. Giesen is president of the board.

The South Atlantic Association of Obstetricians and Gynecologists

Met in Jacksonville, Fla., February 7 and 8, under the presidency of Dr. M. Pierce Rucker of Richmond, at which time an excellent program was presented. Guest speakers were: Dr. Nicholson Jos. Eastman, professor of obstetrics at Johns Hopkins University, Baltimore; Dr. John Rock, research fellow in obstetrics and assistant in gynecology at Harvard

Medical School, Boston; and Dr. William C. Young, associate professor primate biology at Yale University, New Haven.

This Association has a limited membership of one hundred and fifty from the southeastern seaboard states and has just completed its third year. Virginia doctors registered at this meeting were: Dr. C. J. Andrews, Norfolk; Drs. John O. Boyd and A. M. Groseclose, Roanoke; Drs. S. E. Oglesby and F. O. Plunkett, Lynchburg; Dr. T. J. Williams, Charlottesville; and Drs. M. P. Rucker, L. L. Shamburger, H. C. Spalding, W. D. Suggs, H. H. Ware, and W. C. Winn, Richmond.

Dr. Wm. W. Butzner,

Fredericksburg, has been named on the City Council of that place as a member of the City Health Board to fill the vacancy caused by the resignation of Dr. Earle R. Ware.

Dr. Thomas B. Payne, city health officer, is also a member of the Board.

Petersburg Doctors Honored.

At the annual banquet meeting of the Petersburg Medical Faculty, Dr. L. S. Early was honored by being presented with a loving cup, because he holds the distinction of having practiced medicine in Petersburg longer than any other man living. Dr. J. Bolling Jones made the presentation, and Dr. Early, in expressing appreciation, gave an interesting review of the progress of medicine as observed by him during his years of practice.

Dr. J. Bolling Jones was also presented a loving cup, at the regular meeting of the Fourth District and Southside Virginia Medical Society on December 27. Dr. Lowndes Peple, Richmond, in making the presentation, expressed the love and esteem with which Dr. Jones is held by his colleagues and the unique place he has made for himself in his contact with patients and doctors during his more than forty years of practice.

Dr. John M. Love,

Member of the Medical Society of Virginia recently stationed at Ft. Bayard, New Mexico, is now with the U. S. Veterans' Administration Facility at Alexandria, La.

Dr. H. L. Hamilton,

Formerly of Goshen, is now with the Hercules Powder Company in Radford, where he is in charge of Hospital Unit Number 3.

Van Meter Prize Award.

The American Association for the Study of Goiter again offers the Van Meter Prize Award of three hundred dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the Association in Boston, Mass., May 26th-28th. The competing essays may cover either clinical or research investigations; should not exceed three thousand words; and a typewritten double spaced copy sent to the Corresponding Secretary, Dr. W. Blair Mosser, 133 Biddle Street, Kane, Pa., not later than April 1st.

Bank Directors.

Dr. W. W. Wilkinson, La Crosse, has been re-elected president of the board of directors of the Bank of La Crosse.

Dr. D. C. Boatwright has been elected a director of the Bank of Marion, and Dr. J. D. Buchanan of the Marion National Bank.

Dr. J. H. Mapp, Buena Vista, has been re-elected president and a director of the Peoples Bank.

Dr. Porter P. Vinson,

Richmond, announces removal of his offices from Medical Arts Building, to the new Medical College of Virginia Hospital Building.

Officers in Richmond Tuberculosis Association.

Drs. T. Dewey Davis and Kinloch Nelson were re-elected as two of the vice-presidents, and Dr. R. C. Bryan as an honorary vice-president, of this Association, at its annual meeting in February. Doctors re-elected as directors include these and Drs. S. A. Anderson, Emily Gardner, and D. D. Talley.

Dr. James Q. Gant,

Class of '35, Medical College of Virginia, is now with the U. S. Public Health Service at the U. S. Penitentiary, Atlanta, Ga.

The American Public Health Association

Announces the dates of the 70th Annual Meeting as October 14-17 in Atlantic City, New Jersey, with headquarters at the Hotel Traymore.

Dr. Charles D. Smith,

Formerly of Richmond, is now located in Roanoke, with offices at 603 Medical Arts Building. He is associated with Dr. Charles H. Peterson and Dr. Allen Barker, with practice limited to radiology.

XUM

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Actuarial Society of America—Blood pressure study.
Boas & Goldschmidt—The heart rate.
Diehl, H. S.—Textbook of healthful living.
Duffus & Holt—L. Emmett Holt—pioneer of a children's century.
Finney, J. M. T.—A surgeon's life.
Gilbert, R.—The public health nurse and her patient.
Graybiel & White—Electrocardiography.
Grollman, A.—The cardiac output of man in health and disease.
Gutman, J.—Modern drug encyclopedia.
Harris & Harris—Clinical pellagra.
Hewitt, R.—Bird malaria.
Hume, E. E.—Medical work of the Knights Hospitallers of St. John of Jerusalem.
Hunter, A.—Creatine and creatinine.
Joslin, E. P.—Treatment of diabetes mellitus.
Lorenz, A.—My life and work.
Macleod, J. M. H.—Practical handbook of the pathology of the skin.
The Medical reports of John Y. Bassett, M.D.—The Alabama student.
Miller, E.—The neuroses in war.
Mims, E.—Chancellor Kirkland.
Nakashian, A.—A man who found a country.
Riddell, V. H.—Blood transfusion.
Salter, W. T.—The endocrine function of iodine.
Stanley, L. L.—Men at their worst.
Topley, W. W. C.—Authority, observation and experiment in medicine.
Webster, J. H. D.—Periodicity and cause of cancer.
Wilson, S. A. K.—Neurology.

For Sale—

G. E. shock-proof, mounted or bed-side unit X-ray machine of late model F-2. Recently factory inspected and o.k'd. Has been used less than one year. Consists of foot switch, hand time, fluoroscope, and mobile stand. Cost $645, but will sell for $400. Reason for selling—have two machines. Pictures sent on request. Dr. W. B. Barton, Stonega, Va. (*Adv.*)

Wanted—

Physician. Preferably young man who has had some experience in psychiatry or who wishes to enter this field; to associate in psychiatric work in nervous and mental private hospital. An attractive position with opportunity if he succeeds in the work. Address BXY care of this JOURNAL. (*Adv.*)

For Sale—

Short wave diathermy, examining table, cabinet, and instruments. Reasonably priced. Address No. 175, care of this JOURNAL. (*Adv.*)

Obituary Record

Dr. Joseph Augustus White,

Richmond, Va., one of the foremost specialists of the country in diseases of the eye, ear, nose and throat, and the pioneer of this work in Virginia, died February 16, from the infirmities of age. Had he lived until April 19, he would have been ninety-three years of age. Dr. White was a native of Maryland and graduated in medicine from the University of Maryland in 1869, following which he spent three years abroad in postgraduate work, and was attending clinics in Berlin at the time of the Franco-Prussian War, which enabled him to make a special study of war casualties. Upon his return to this country, he practiced surgery for a few years in Baltimore, before coming to Richmond to take up his specialty in 1879. His work here made him known as one of those who had done most for Southern medicine and many honors came to him in national as well as local organizations. Among these he was a former president of the Richmond Academy of Medicine, the Tri-State Medical Association of the Carolinas and Virginia, the Medical Society of Virginia, the American Laryngological, Rhinological and Otological Society, and also served on committees in these and other societies. He was one of the founders of the University College of Medicine in Richmond and a professor in that and later the Medical College of Virginia until about ten years ago.

Dr. White was endowed with a pleasant personality and kindly sense of humor which made him an addition to any group. He was prominently identified with the social interests of Richmond and was connected with many of its clubs. A daughter and several grandchildren survive him.

Dr. Edward Anderson Holmes,

Widely known physician of Marion died February 4. He was born in Tazewell County in 1873 and graduated from the University of Virginia, Department of Medicine, in 1897. Since that time, Dr. Holmes had practiced in Smyth County. He was County Coroner for eight years and vice-chairman of the County Welfare Board. Dr. Holmes had been a

member of the Medical Society of Virginia for forty years. His wife and several children survive him.

Dr. Moses Hoge Tredway,

Prominent physician of Emporia, died February 8, following an emergency operation. He was forty-five years of age and a graduate of the Johns Hopkins University School of Medicine in 1911. Dr. Tredway had practiced in Emporia since his graduation. He had been a member of the Medical Society of Virginia for twenty-six years. His wife and a daughter survive him.

At a called meeting of the Steering Committee of the Fourth District and Southside Virginia Medical Society held in Petersburg on February 20, 1941, the following resolutions were adopted:

WHEREAS, our friend and colleague, Moses Hoge Tredway, was separated from us by death on February 8, 1941, and

WHEREAS, he was a generous, diligent, efficient and greatly beloved physician, and

WHEREAS, we feel a great grief from our loss, NOW THEREFORE BE IT RESOLVED:

First, that we express our profound sorrow at his passing and our sympathy to his family and relatives,

Second, that these resolutions be placed in our minutes, and

Third, that a copy be sent to the VIRGINIA MEDICAL MONTHLY, and

Fourth, that a copy be sent to his family.

WRIGHT CLARKSON, *Chairman*
MEADE EDMUNDS
FLETCHER WRIGHT
C. EDW. MARTIN, *Secretary.*

Dr. William Elbert Jennings,

Well-known Danville physician, died unexpectedly on January 26, following a heart attack, although he had not been in good health for some time. He was a native of Bedford and fifty-five years of age. Dr. Jennings graduated from the Medical College of Virginia in 1909 and had practiced in Danville for thirty years, specializing in allergy. He was a Mason and a member of the Danville Rotary Club. Dr. Jennings joined the Medical Society of Virginia in 1910. His wife, three brothers and two sisters survive him.

Dr. Thomas Bernard Latane,

Formerly of Stevensville and for many years a practicing physician in King and Queen County, died February 18. He was sixty-nine years of age and a graduate in medicine from the University of the South, Sewanee, Tenn., in 1903. Dr. Latane had been a member of the Medical Society of Virginia since 1904, and retired from practice about a year ago. Three sisters survive him.

Dr. Phil Hawkins Neal,

Eye, ear, nose and throat specialist of New York, died in that city on January 22. He was a native of South Boston, Va., and forty-four years of age. Dr. Neal graduated from the Medical College of Virginia in 1923, and had continued membership in the Medical Society of Virginia since leaving this State. His wife and two children survive him. Dr. J. J. Neal of Danville is a brother.

Dr. Thomas William Mason Long,

Of Roanoke Rapids, N. C., secretary-treasurer of the Medical Society of the State of North Carolina, died suddenly February 3, following a heart attack. His death occurred in Raleigh where he was attending General Assembly as Senator from Halifax County. Dr. Long was fifty-five years of age and a graduate of the former University College of Medicine in Richmond, in 1908. He was a recognized leader in medical affairs of his State and active in civic affairs. He had been a member of the General Assembly of his State for the past ten years, and had been sponsor of a number of bills for improvement of health conditions in North Carolina.

Sir Frederick Banting,

Co-discoverer of insulin and a Nobel prize winner, was killed in a military airplane accident on February the 20th. He was professor of medical research in the University of Toronto before joining the Canadian Army Medical Corps at the beginning of the present war, and held the rank of major at the time of his death.

Dr. Albert Benjamin McCreary,

State Health Officer of Florida, died in Jacksonville on January 24, at the age of forty-five. He was formerly health officer of Northampton County, Va.

Dr. Charles Wardell Stiles,

Internationally known as a zoologist and the discoverer of the "hookworm" died at the Marine Hospital, Baltimore, Md., January 24, where he had been under treatment for a heart ailment. He won his Ph.D. degree from Leipzig in 1890, and was the recipient of many honorary degrees, one of these being from the Medical College of Virginia.

XUM

Dr. William Oliver Smith,

Well-known physician of Altavista died on December 17, 1940, after having been in declining health for the past three and one-half years, at which time he retired from active practice. He was born in Bedford County July 30, 1869, and graduated in medicine from the former University College of Medicine, Richmond, in 1898. Before coming to Altavista in 1908, Dr. Smith practiced at Gretna, Virginia, and in Pittsylvania County. He was interested in and took an active part in the civic, social and religious activities of the community. He is survived by his wife, two sons and two daughters.

WHEREAS, a wise Providence has seen fit to remove from our midst our respected and loyal colleague, Dr. W. O. Smith, who for many years has been an outstanding physician in Campbell and Pittsylvania Counties, and who practiced medicine tirelessly, charitably and diligently, now therefore be it

RESOLVED, That we, the members of the Lynchburg Academy of Medicine, regret the death of our friend and associate which deprives us of a sympathetic and faithful member; and,

That in his death the medical profession of our state, and especially the community in which he lived, have sustained a great loss; and,

BE IT FURTHER RESOLVED, That we extend our heartfelt sympathy to his family in their bereavement and,

That a copy of these resolutions be placed upon the minutes of our Lynchburg Academy of Medicine, a copy be sent to Dr. Smith's family, and to the VIRGINIA MEDICAL MONTHLY.

JAMES R. GORMAN,
PAUL KENT,
CARLTON MOORMAN,
Committee.

Resolutions on the Death of Dr. Emory Hill.

SEPTEMBER, 1883—DECEMBER, 1940.

There comes a time in the lives of men when the inevitable call must be answered. The greatest void is left by those valiant few who, like Dr. Emory Hill, have both pioneered and taught.

THEREFORE, BE IT RESOLVED by the Richmond Academy of Medicine assembled to express its sorrow in the death of this great physician and fellow-member:

Born in Scottsville, in Albemarle County, Virginia, of notable ancestry, educated in the Athenian schools of this State, receiving his A. B. degree from Columbia University, teaching to help to obtain his professional education at the Medical College of Virginia, this fine product of his environment went to wider fields to perfect himself in the specialty of ophthalmology. At the Infirmary for Nervous Diseases, and at the Wills Eye Hospital in Philadelphia, he came under the tutelage of such men as S. Weir Mitchell, George E. de Schweinitz, Frank Fisher, Charles A. Oliver, Samuel D. Risley. Conrad Berens, Sr., P. N. K. Schwenk, McCluney Radcliffe, S. Lewis Ziegler, William Zentmayer, and William Campbell Posey—men whose names freshen our memories as the best in Neurology and Ophthalmology. From among this group some of his most lasting friendships were formed. He then went to Chicago in association with Cassius Westcott, and served in the eye clinic of Rush Medical College. While there, he made brilliant contributions to the pathology of the pituitary gland, upsetting certain accepted ideas of its connection with the eye.

Dr. Hill was gaining a large practice and high reputaion when, in 1919, there occurred an opening in Richmond for pioneer practice in certain aspects of ophthalmology and a teaching connection with his Alma Mater. His only stipulation for acceptance was that he be allowed half of each day for clinical and laboratory work. From Richmond his accomplishments radiated to become nationwide. The honors that came to him were too numerous to be detailed here. Suffice it to say that in 1930 he followed Dr. J. A. White as Professor of Ophthalmology at the Medical College of Virginia, and was secretary for many years of the American Ophthalmological Society. He never gave up his investigative and clinical inclinations, in spite of many outside duties. And he had the relatively rare virtue of being able to stimulate study and research in others. Dr. Hill cooperated with Mr. L. L. Watts in establishing the sight-saving classes in the public schools. He personally examined each applicant. This program has extended through the State.

Emory Hill had a brilliant mind, quick in conception and clear in thought, while at the same time he was an arduous student. No one fooled him, and he never fooled himself. He had the ability to express himself succinctly, frankly, and with absolute fearlessness. These faculties made him an exceptional teacher, a wise counselor, an outstanding physician, and a cultured and courageous gentleman. He was not the type of teacher who is more interested in his own institution than in education.

Emory Hill was so interested, so direct and so truthful, that he was sometimes misinterpreted as being abrupt; but no man had a heart more kind. He would enucleate the eye of a pet dog as antiseptically and as skillfully as that of an important patient. He gave of his knowledge and of himself unsparingly when there was no hope of reward; and, even when ill, would get out of bed to see cases with minor conditions, because he knew that they did not seem insignificant to the patient.

Emory Hill was a devoted husband and father, a loyal friend, an illustrious ophthalmologist, a learned scholar, a great teacher, and a truthful and courageous man.

THEREFORE, BE IT FURTHER RESOLVED that as an expression of our admiration of his life and of our sorrow at his passing, a copy of these resolutions be given to the daily press, to the VIRGINIA MEDICAL MONTHLY magazine, and to his family.

BEVERLEY R. TUCKER,
M. PIERCE RUCKER,
ROBERT N. COURTNEY,
Committee.